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A JOINT REPORT OF THE OTO-LARYNGOLOGICAL FEATURES OF THE INFLUENZA EPIDEMIC AT CAMP HANCOCK, GA., SEPTEMBER-DECEMBER, 1918.*

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At an officers' meeting held immediately after dinner on Sunday, September 29, it was announced by the Commanding Officer of the Hospital that telegrams had been received stating that in the course of the day two troop trains would arrive at Camp Hancock. On one of these trains were 50 sick soldiers, and on the other ninety. It was further announced that beds had been made available for these men and that the hospital was in every way prepared to receive them.

Early in the evening the sick boys began to arrive, and it was seen almost at once that the number would be far in excess of that indicated by the telegrams. From late afternoon till well into daylight next morning they came pouring in, brought from the railway station by ambulance and truck. When a count was made it was found that, instead of 140 sick soldiers, the morbidity on the train had increased with such speed and to such an extent that 770 men were brought to the hospital directly from these trains.

While a few sporadic cases had developed in Camp Hancock the real epidemic began, and in very stormy fashion, with this influx from the troop trains from Camp Grant. And a very sick lot of boys they were.

Almost at once were the specialized services of the members of the Oto-Laryngological Department called for, the first complication requiring attention, consisting of many cases of violent and persistent epistaxis. As the days passed, other phases of the disease developed and had to be taken care of.

The main concern of the Department was the ear, especially in its suppurative and mastoid aspects. The present Chief of the Service at Camp Hancock was determined from the first not to leave out any detail which would promote the healing of acutely affected ears and prevent mastoid complications. In this he was ably and entirely supported by the members of his staff, by the Chief of the Medical Service and by the ward surgeons; by the former in ordering and carrying out the treatment decided upon, and by the others in co-operating in every way in carrying out the plans laid down.

In order that all such complications should receive prompt attention, a request early was voiced at an officers' meeting that all cases of ear pain be reported at once to the Department of Oto-Laryngology. This was to be in force both during the day and night. This request soon was found to be insufficiently broad, because in the first days of the epidemic it was noted that some middle ear cavities were found to be filled with pus, with the patient complaining, not of pain, but only of deafness and a sense of fullness in the ear. As a result of this observation it was requested that any patient complaining of any ear symptom whatsoever, even if only a sense of fullness, be immediately reported to the Oto-Laryngological Department. In order that no calls should go unanswered, an orderly was constantly on duty in the Head Section Building, one orderly sleeping in the building near the telephone. It was hoped in this manner to secure prompt 24-hour service, and such, in fact, proved to be the outcome.

By this plan nearly, if not quite, every patient who presented ear symptoms was seen by a spe-

*Read by Dr. Rideout before Jo Daviess County Medical Society Meeting, Nov. 13, 1919.

cialist within half an hour of the time notification of his condition was received by the Department.

In carrying out the detail of visiting the cases the hospital was divided into three equal parts and to each part was assigned one junior member of the staff. These men started in at 8 o'clock in the morning and made rounds of the portion of the hospital assigned to them. At each ward or tent group, the surgeon would see the cases which he knew required attention and would inquire as to whether or not there were any others. At 10:30 A. M. each man would telephone the clinic to find out if any emergency calls had been sent in from the portion of the hospital under his care. The night calls were answered by the officer on emergency duty, and when there was more work than he could handle, a second, and sometimes a third, member of the Department was called upon.

The Chief of the Department remained throughout the day in the Head Section Building, receiving calls and distributing them, and seeing, with the ward visiting surgeons, those cases on which the latter desired the opinion of the Chief.

The main difficulty met with in examining and treating the patients was in securing adequate illumination. When it was realized that at least two-thirds of the sick boys were on porches or in tents, the force of this statement will be more fully realized. When ever possible, sunlight and diffuse sunlight were used. Frequently the patient would be in such a position in the ward, porch or tent, that the rays of the sun could be focused by the head mirror on the region being examined. This made an ideal light and was taken full advantage of. Diffuse daylight could be used in examining throats, but, of course, was of no value in examining the nasal cavities and ears.

The usual source of illumination was oil lanterns, with which each ward and tent group was provided. This was very satisfactory in the wards, but on porches and in tents the presence of so much diffuse sunlight rendered impossible clear illumination of the nasal chambers and of the external auditory canal and ear drum. This difficulty was overcome by having orderlies hold a blanket around the surgeon and patient, thus making a screen and forming a dark room and cutting off sufficient daylight to allow the reflected light from the lantern wick to illuminate with all necessary clearness the parts being examined.

A second handicap was the impossibility, on account of the relative shortage of nurses and orderlies, of carrying out in detail the routine ear treatment which was in force in the hospital.

Oto-Laryngologists agree that in all cases of acute tubotympanic disease treatment of the nose and naso-pharynx is advisable, not to say imperative. Under the conditions in which this epidemic was handled, it was utterly impossible to administer such treatment. The nursing and orderly staffs were driven to the utmost in order to carry out the fundamental necessities of general treatment, and neither personnel nor appliances were available for nasal treatment. Almost to a man, the cases of ear involvement went through the attack with no treatment except to the ear, and so successful was the outcome that one is tempted to question the vital necessity for nasal and naso-pharyngeal treatment as a routine measure in acute middle ear disease.

As stated above, the main concern of the Department was to minimize to the utmost the effects of involvement of the ear. For each case of acute otitis media, whether open or closed, it was endeavored to have administered the simple treatment described below. On account of the wide scattering throughout the entire hospital of these cases, the amount of time required to administer the treatment, the shortage of skilled nursing and the lack of paraphernalia, it was not possible in all cases to have it carried out. When it is realized that the number of patients in the hospital jumped in a few days from 1500 to nearly 5000, the obviousness of these difficulties will be appreciated. In addition, three members of the Oto-Laryngological Staff were victims of the influenza, non fatal however, but nevertheless throwing a heavy burden on the rest.

This routine treatment was as follows:

1. Absolute rest in bed.

2. Irrigation of the ear every 4 hours with 2000 c.c. of hot normal salt solution. The more severe cases received irrigations every three, and even every two hours.

3. Filling of the ear with hot solution of phenol (10%) and glycerin (90%).

4. Filling the ear loosely with absorbent cotton.

5. Covering the ear with a large wad of absorbent cotton which was bandaged in place.

6. Keeping a hot water bottle constantly against the ear. As the ear improved, first the heat, then the bandaging, and finally the irrigations were dispensed with.

As a result of the prompt system of notification of the Department of all cases presenting ear symptoms, practically every case was seen in its earliest stages. If the ear drum was found to be normal in contour, the treatment described was ordered. If the slightest amount of budging was present, the rule following was to incise freely and at once. Each ward visiting surgeon carried with him the appliances for performing this little operation. There is no doubt that there may have been opened some middle ears which would have gone on to resolution without complications or sequelæ, but it is certain that there were no ear drums needing an incision that did not have one.

When an anesthetic was used, it was the usual mixture of equal parts of cocaine, phenol and menthol. Sometimes it was effective and sometimes it was not. When the patient was very nervous and time would allow for it, an attempt was made to benumb the ear drum with this solution. Otherwise the drum was opened without an anesthetic.

The results of our plan of procedure can best be shown by reference to the figures for October, November and December. The real epidemic began, as stated above, with an influx of patients on Sunday, September 29, seven hundred and seventy cases being admitted to the hospital on that day and during the night following.

During October many hundreds of ear cases were seen in bed and in clinic. On account of the hectic conditions under which every one was working, it is impossible to give the exact number. During November the number was smaller and during December it was smaller still—a total of approximately 900.

In the three months there were 322 cases requiring myringotomy. In a few instances a second incision had to be made, and on still fewer a third. Of these cases 202 required incision of the ear drum in October, 89 in November, and 31 in December. Many of these developed tender mastoids. When the latter condition appeared a special endeavor was made to have the patient transferred to a ward where the routine treatment described above could be administered. The result was a most happy one, as not a single one of the October cases required a mastoid operation, the report for that month reading:

Myringotomies	204
Mastoidectomies	0

There were no cases of sinus thrombosis and none of otitic meningitis; in addition none of the acute suppurative middle ear cases became chronic, every one ending in a dry ear and a healed perforation.

By the following month (November), the epidemic was on the wane, and the work of the Department had lightened materially. The November report read as follows:

Myringotomies	89
Mastoidectomies	4

Only two mastoid operations followed influenza, and both of them occurred in one soldier. This boy was a very septic specimen, with a negative Wassermann reaction. First, (October 24, 1918) he developed a large external peri-chondritic abscess of the thyroid cartilege, which was opened and drained. This was followed later (November 13, 1918) by a mastoid abscess of the left side, and still later (November 16, 1918) by the same condition on the right side. Both of the other November mastoids were cases in which the middle ear became involved in the course of an acute coryza.

In December there were five mastoid operations performed, and two of these were post-influenzal, two post-measles, one post-coryza. The December report was as follows:

Myringotomies	31
Mastoidectomies	5

In this month the influenza incidence was very low until about the middle of the month, when there was a slight recrudescence of the disease. The great majority of the cases in December developed in connection with either a coryza, measles or scarlet fever.

These figures, in the minds of the writers of this report, constitute rather a notable showing. The total admissions of influenza cases to the Base Hospital for the month of October were 6,553. In November there were 1,162, and in December 66, making a total of 7,781. In addition to this, during those three months, there were 426 admissions for measles and 418 for

scarlet fever. Added to these, there were a large number of cases admitted on account of ear or throat or nose conditions alone. From this large number resulted only eight cases requiring mastoid operation, one of these being bilateral, thus making nine operations in all. It might be added that all of them healed in the usual four to six weeks, with no complications or threatened sequelæ. One of them developed decided weakness of the facial muscles of the affected side, but shortly after the mastoid was cleared out the symmetry of the face returned to normal.

ADMISSIONS*

Months	Influenza	Measles	Scarlet Fever	Myringotomies	Mastoid Operations
Sept.-Oct.	6,553	145	6	204	0
Nov.	1,162	215	401	89	4
Dec.	66	65	11	31	5
Total	7,781	425	418	324	9

MASTOID OPERATIONS

Months	Post-Influenzal	Post-Measles	Post-Scarlet Fever	Post-Coryza
Sept.-Oct.	0	0	0	0
November	2	0	0	2
December	2	2	0	1
Total	4	2	0	3

*From September 29 to October 31 inclusive.

It is barely possible that during the fall and early winter of 1918 the organisms which attacked the upper air passages had a very slight selective affinity for the mastoid. The notable escape of the tympanic adnexa from serious trouble at first tended to support this view. But as the season advanced and the acute exanthemata began to come in in increasing numbers, and still the mastoid incidence remained negligibly low, it seemed justifiable to assume that the prompt and careful treatment accorded all ear cases was the dominant factor.

It is quite probable that this low percentage of mastoid-ectomies could hardly prevail in civil practice, because such immediate and painstaking treatment would not and could not be obtained. One factor in this would be that ear affections frequently are considered to be trivial matters by a certain element both of the medical and lay population. Furthermore, it should be realized that the soldier patient is under orders, and is obliged to submit at once to whatever treatment is deemed best for him, with no opportunity afforded him of refusing or postponing the measure decided upon by his officer surgeon.

In the external ear there developed only a few (17) cases of furunculosis and a large number of serous or sero-sanguineous blebs, the latter being the condition called by Politzer otitis externa hemorrhagica.

Otitis externa hemorrhagica. This condition was found almost exclusively in the influenza cases and always confined to the osseous portion of the external meatus. Sometimes the blebs would be of a purplish hue and at other times clear and watery, resembling on the one hand a "blood blister," or, on the other hand, an ordinary blister. At first they were routinely incised, but later they were left alone unless they interfered with inspection of or drainage of the middle ear. Quite frequently they were found to be as sensitive as in the ear drum.

In view of the two distinct varieties of blebs found, it might be more accurate to modify and enlarge the terminology of the condition as follows:

Otitis externa bullosa:

(a) Serosa
(b) Hemorrhagica

Epistaxis. But one obtruding condition was found in the nose and that was profuse and persistent epistaxis. In every case but one the bleeding point was located at the anterior part of the septum, the so-called locus Kiesselbachii. In the one exception, a spurting artery was observed on the lateral wall of the nose at the anterior end of the inferior turbinated body. The incidence of epistaxis was the greatest in the first influx of cases. These boys were brought in directly from the troop trains after two days or more of travel, with limited bathing facilities, and it is believed that the irritation and excoriation of the nasal mucosa produced by the train dirt was an important factor. Epistaxis became much less frequent in the later days of the epidemic, when the cases were developing in soldiers who had been in camp for several days.

Sinusitis. The incidence of sinusitis was exceedingly low. Exact figures are not at hand nor are they obtainable. When a case of this sort developed, a routine spray of adrenalin chloride 1:7000 was given every hour, and when the pain was severe the middle meatus was packed for half an hour or more with cotton pledgets saturated in the same solution. All of these cases returned to normal and none required operation for their relief.

Tonsils. There were very few cases of tonsilitis and still fewer of peri-tonsillar abscess. During the months of October, November and December there were but 25 cases requiring the evacuation of pus.

Larynx. Laryngitis was present in quite a few cases and the manifestations in the larynx were of three different types: 1, Diffuse catarrhal laryngitis, with the usual appearance found in this condition; 2, ulcerative laryngitis, with small, narrow, superficial ulcers running lengthwise of one or both cords, and 3, what might be called "Asthenic laryngitis."

A section of ulcerated cord from a case of type 2 was submitted to the pathologist, who reported on the specimen as follows:

"Section shows mucosa with an irregular loss of substance, with submucosa exposed, which with muscle tissues still deeper is infiltrated with polynuclear leucocytes. Diagnosis: Acute inflammation of vocal cords with ulceration."

The last form (3) deserved a more detailed description. It was found almost entirely in a group of cases which came from among the soldiers who had been in Camp Hancock for some time. It was characterized by a normal or slightly reddened mucosa, absence of ulcerative lesions and mainly by a marked weakness of the laryngeal musculature. An attempt at phonation would result in a feeble effort to approximate the vocal cords and an immediate discouraged return of the cords to the respiratory position. A similar condition of the palatal and pharyngeal and probably of the esophageal musculature usually was found to be associated with it. The muscular efficiency of the entire throat was very low and it was tested out in one patient by having him endeavor to swallow a large mouthful of water. The effort at deglutition immediately was followed by a gush of water from his nose and by cyanosis. It was evident that the muscles neither of the soft palate nor his larynx had the strength to close off the entrance to the cavities which they guard. In a short while he was able by a few weak coughs to clear his larynx and trachea, but for the moment it looked as if he was in imminent danger of suffocation from the water which he was unable to prevent from entering his trachea and then was almost unable to expel from it.

The actual cause of this condition could not be determined. Possibly it was a toxic myositis, possibly just a part of the general asthenia, possibly it was due to toxic poisoning of the centers in the medulla, really constituting an acute form of bulbar paralysis.

The members of the Oto-Laryngological Staff feel that they were in great good fortune to have been at Camp Hancock during the epidemic. Rarely does a physician or even a collaborating group of physicians have an opportunity of studying synchronously such a large series of cases occurring in people of approximately identical age and living under uniform clothing, housing and dietary conditions. Usually observations on a large number of cases must extend over a long term of years and under such conditions early impressions and conclusions are likely to grow hazy and later ones assume undue prominence and force. While necessarily conditions in this epidemic were such that accurate record of all phases of the influenza was impossible, still it is felt that so careful an estimate has been made where accurate records were not obtainable that conclusions drawn can fairly be considered as being based actually on numerical fact.

Dr. Rideout reported the following case to illustrate what may occur from carrying out this line of treatment too conservatively. No doubt earlier mastoidectomy would have prevented the numerous metastitic sequelæ that ensued.

B——— N———, Pvt. Co. 2, Dev. Gr. Camp Hancock, Ga. Born in Miss. Age 22. White. Admitted 12/14, 1918. Service 5/12 yr. Occupation, farmer. Habits as to alcohol, abstainer.

Family history: Father and mother living and well. Two brothers and 3 sisters living and well.

Previous personal history: Influenza in Oct., 1918. Whooping cough in childhood.

Venereal history: Gonorrhea 5 mo. ago; discharge 3 mo.

Objective symptoms—Condition on admission: Acutely ill with cough, etc. T. 104. Weight, normal, 170. Present, 180. General condition, good muscular development. Special senses, moderate conjunctivitis. Skin and mucous membranes: Maculo-papular eruption over entire body.

Glandular system, slight cervical adenopathy. Vascular system, negative. Blood pressure, not taken. Heart, borders normal, no murmurs. Lungs, no dullness; fine moist rales in both bases. Genito-urinary system, apparently negative. Abdomen, liver and spleen not palpable; no tenderness or masses.

Nervous system: Reflexes normal.

Diagnosis, measles. Hemolytic strep. found in throat culture.

12/30, 1918. Developed Ot. Med. Sup. Ac. right. Myringotomy performed. No hem.. strep. found.

1/1, 1919. Myringotomy left ear.

1/9, 1919. Myringotomy repeated on right ear.

First mastoid tenderness reported 1/2, 1919. Drainage fair, but mastoid tenderness continues.

1/11, W. C. count 15,600; 1/13, 20,400.

1/14, 1919, mastoidectomy, perisinous abscess, ruptured and collapsed sinus; removal of clot from upper portion with free bleeding. Operation discontinued on account of almost moribund condition of patient. Hem. Strep. in pus. Leucocyte count, 1/11, 156,000; 1/13, 20,400.

1/15, 1919, subnormal temperature, A. M.; increased P. M. Cyanotic appearance. Tenderness over right sterno mastoid, slight swelling. Right wrist painful and somewhat swollen.

1/16, 1919, leucocyte count, 29,000. Resection of right internal jugular containing thrombus. Hemolytic staph. recovered from specimen. Specimen 3 in. in length. Pathologic report, septic ends and periphlebitis acute.

1/19, 1919, left knee joint swollen and tender. Diagnosis, probable septic arthritis, metastaic.

1/20, 1919, left knee joint aspirated; no fluid obtained. Left knee joint very much swollen and tender. Operated, 105 cc. of straw-colored fluid withdrawn (semi-turbid). Dakin's treatment begun. Left ear gave no trouble following myringotomy of 1/1.

1/22, 1919, leucocyte count, 25,250. Large bronchial rales and some small dry rales scattered throughout chest. No evidence of pneumonia. Diffuse acute bronchitis present. Right mastoid and neck wounds healing nicely. Right knee has given him his greatest discomfort during past 3 days.

1/23-1/26, 1919, leucocyte count ranged from 24,000-28,500.

1/29, 1919, leucocyte count ranged 17,250; knee condition improving.

2/1, 1919, leucocyte count ranged 11,350; marked general improvement.

2/4, 1919, some swelling over right sterno-clavicular articulation, which subsided in a few days following local treatment. Mastoid and neck wounds healing; knee condition better and patient apparently improving in every way until 2/20, when an ac. sup. ot. med. developed in left ear. Myringotomy performed (left).

2/21, 1919, marked mastoid tenderness.

2/22, 1919, increased mastoid tenderness. Leucocyte count, 26,900. Some swelling below tip; suspicion of phlebitis. Mastoidectomy (left). Thick cortex, pus in deep cells. Puncture of lateral sinus, free flow venous blood.

2/24, 1919, lung ex. Some high pitched breath sounds, somewhat altered voice, very few rales; no definite signs of pneumonia.

2/25, 1919, temp. past 24 hrs. 101.4-103.2. Diagnosis pneumonia. Pulse past 24 hrs. 120-144 Staph, albus and Hem. strep. in mastoid pus.

2/26, 1919, all surgical wounds doing well. Apparent slight improvement of condition generally. Temp., A. M., 102; N., 101.6; P. M., 102.6. Pulse, 144

2/27, 1919, blood culture of Feb. 24, Pneumococcus, Type 4. All surgical wounds healing nicely. T., 100.6-101.6; pulse, 124-132; respirations, 30.

2/28, 1919, T., 101-101.2; pulse, 120; respirations, 30-32.

3/1-3/7, 1919, temp. gradually subsiding, 99-99.6 past 3 days. Pulse 100-108. Improving in volume. Respirations, 22-24. Patient apparently on road to recovery.

3/12, 1919, convalescing slowly. Able to sit up in bed one hour each day for past 3 days.

3/13, 1919, patient complains of some pain in left chest. Reported empyema.

3/14, 1919, X-ray taken. Confirms diagnosis of empyema.

3/14, 1919, Rib resection, 8th rib resected; 500 cc. of pus removed; 3 Dakin tubes inserted.

3/14, 1919, 3 P. M., some pain near McBurney's point. Diagnosis appendicitis made.

3/14, 1919, 9 P. M., under spinal anesthetic did appendectomy.

3/15, 1919, general condition good. Dakin treatment started for the empyema.

3/20, 1919, patient making a normal recovery. Left mastoid wound completely filled with granulation tissue and healing normally.

A letter was received from this patient under date of July 15, in which he stated he was feeling quite well and had received a disability rating of 50% from the Government.

SPASMOPHILIA.*

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The clinical fact that infancy and early childhood are much more frequently attacked by convulsive disorders arrested the attention of clinicians long ago and gave rise to any number of theories as to the cause.

The first really scientific work was that of Soltmann, who found by experimental investigation, that in new born dogs, cats and rabbits the motor cortical areas cannot be excited and are probably incapable of functioning. He concluded that they are incapable of exercising either an innervating or an inhibiting influence on subcortical motor centers. In order to apply these discoveries to the human newborn he compared the medullary striation in the animals experimented upon and in human infants. Soltmann's investigation

*Read before the Aux Plaines Branch of the Chicago Medical Society.

showed that the human infant requires from twelve to eighteen months to attain the development of an animal from ten to twelve days old, at which time irritation of the cortex produces contractions of muscles on the opposite side of the body. These results appeared to explain the greater frequency of convulsive disorders in the human infant. Another interesting result shown by these experiments was that the nerves of newborn animals are much less irritable than in the adult.

Not until quite recently have any additional facts or possible theories been brought forward. In 1899 Thiemich pointed out what he termed an individual pathologic spasmophilia; this is characterized by exaggerated mechanical and electrical irritability of the peripheral nervous system before and after the convulsions and in the interval of freedom from the attacks. Children of this type are peculiar in the behavior of their peripheral nerves, so that one is justified in speaking of a special nervous state, which prior to this had been termed a tetanoid condition.

In 1904 Baginski wrote his thesis on this subject and to which he gave the title "Spasmophile Diathesis." In this paper he grouped all of the convulsive disorders without anatomical basis and which may be recognized by a measurable mechanical and electrical over-excitability of the nervous system.

This exaggerated irritability which constitutes the peculiarity of spasmophilia can be demonstrated in one or several peripheral nerves by simply tapping the nerves with the percussion hammer at accessible points, such as, for example, the well-known nerve points of Erb. The phenomenon is most clearly seen in the facial nerve, the tapping of which produces unilateral contractions of the muscles of the face—the so-called Chvostek sign.

As no clinical method has been devised by which the mechanical irritability may be measured, electrical examination gives a more exact means of determining the varying irritability of these nerves. Erb had already noted an increased faradic and galvanic irritability in the tetany of adults. These were confirmed in infants and by a series of comparative investigations on a large number of children which yielded a typical law of contracture. Without going into the many reactions it may be stated that the kathodal opening contraction in the normal is above 5 m. a., while in the spasmophilic it is under 5 m. a.

Using this test it is found that there may be grouped under the term of spasmophilia these conditions which previously have been classified as eclampsia, laryngismus stridulus, tetany, apnea, etc.

The etiology of the condition is as yet in the theoretical stage. Researches on the nervous system have not disclosed any characteristic changes, those coming to postmortem showing only a passive congestion of the central nervous system. Czerny instituted a series of chemical examinations of brains which disclosed a diminution of the calcium salts in the brains of tetanic children; other investigators have found abnormalities of the metabolism of the alkaline salts.

Undoubtedly heredity frequently plays a very important rôle. Spasmophilia is frequently met with in families with a neuropathic taint. There can be little doubt that digestive disturbance is frequently an exciting cause of the individual attack.

The disorder is far more frequent in the artificially than in the naturally fed infant. The acute disorders as well as chronic appear to increase the tendency toward the affection.

The theory of perversion or disturbance of the parathyroids and the experimental production of spasmophilia in animals is as yet entirely upon experimental ground.

There is no doubt that these cases are far more frequent in the winter and early spring than at other seasons.

Symptomatically spasmophilia may be divided into such groups as distinct entities; eclampsis, laryngo-spasm, tetany and those cases without clinical manifestation which are discovered only upon examination.

The eclampsia of infants consist of localized or more commonly general convulsive seizure that until recently were regarded as a form of epilepsy characterized by the patient and the favorable clinical course; these cases tending toward complete recovery during early life. The attacks consist of a primary tonic with a secondary clonic stage. There appears to be a kind of aura; the child becomes restless, inattentive and anxious. This stage lasts from a few seconds to a few minutes and is followed by a sudden pallor of the face, loss of consciousness, and a tonic convulsion

of the face which may or may not extend to the entire body with each paroxysm as Soltmann expresses it "as though a powerful electric current were passed through it." The respiration has a staccato type, often audible, approaching a cry. There is considerable cyanosis and profuse perspiration. Gradually the convulsion subsides into a general relaxation and return to consciousness, but is not usually followed by the sleep which follows the epileptic seizures.

In severe cases there may be a massing of attacks and one seizure follow another in succession and one may use the term status eclampticus as an analogue to atatus epilepticus.

The convulsions of spasmophilia may appear but once, but this is the exception. Usually the attacks are repeated but the intervals show the widest extremes of irregularity. The seizures may occur daily, twice a day, twenty times a day or at intervals of weeks or months.

The attacks often show evidence of being precipitated by some acute disorder or reflex irritation. Death during the eclamptic attack is relatively rare as compared to laryngo-spasm.

There is no rise of temperature in the uncomplicated attacks of spasmophilia and its presence should attract the attention to some infection.

The second form of spasmophilia is laryngospasm glottidis. This in its milder manifestations presents itself as a mere strident, protracted, crowing inspiration. In severe cases the closure of the glottis is so complete that symptoms of asphyxia—anxious expression of the face, cyanosis, short clonic contractions of the facial muscle and upper extremities ensue until the spasm is relieved by a forcible inspiration. The attacks are frequently induced by a disturbance of the child, especially by laughing or crying and in some cases the act of nursing irritating the glottis sufficiently to inaugurate an attack. The inspiratory stridor of laryngospasm is characteristic and whenever in a crying infant each inspiration is audible as a distinct crowing sound, spasmophilia should be suspected. The disturbance of laryngospasm is inspiratory; there is a distinct interference with inspiration and the spasm of the glottis may, and undoubtedly does, in the severer attacks, extend to the diaphragm. These cases which are given the term expiratory apnea place the infant's life in extreme jeopardy and is not an infrequent cause of death.

With the delayed inspiration there is a marked slowing of the heart beat and at times there is an apparent cessation of the heart sounds for several seconds. The increase in the frequency of the heart beats usually anticipates the relief of the apnea momentarily. As the spasm relaxes a long crowing stridor accompanies the prolonged inspiration; deeper inspirations follow and the stridor diminishes as normal respiration is established.

Where the case terminates during the spasm artificial respiration is of no avail as death is caused not from respiratory, but cardiac stoppage. The plunging of the hypodermic needle into the heart muscle may stimulate the heart to further activity.

The attacks of laryngospasm show the same extremes in frequency and severity as seen in the eclamptic cases.

The third group—tetany.

This type is characterized by tonic convulsions of the extremities; they are frequently accompanied by paresthesia of the affected limbs and consciousness is always preserved.

The hands tend to assume the obstetrical position with thumbs bent upon the palm, the fingers flexed over the thumb and fingers in extension. It is usual that the arm is flexed upon the trunk; the forearm and hand flexed. Where both uppers are involved the patient takes on the position assumed by a dog when begging. The lower extremities are not so frequently attacked, but when they are, they are usually flexed at the hip and knee.

These appear suddenly and may last for hours and even days, but usually last about one hour. Any effort made to overcome the spasm elicits great pain, but if allowed to remain contracted patients do not appear to suffer greatly.

In the severer attacks the convulsions may extend to the face and neck when the patient has a rigid expression, with wrinkled brow and a protruding mouth like a snout. The feet have the typical position of varus or equinovarus with pes cavus.

Among the rarer groups of muscles involved are the sphincters of the bladder, the muscles of deglutition, pupils, and eyes.

The mechanical irritability of tetany has been described under the terms of Chvostek's and Trousseau's signs.

Chvostek showed that by the tapping of the cheek there was caused a rapid contraction of the muscles just as though the nerve had been electrically stimulated.

Trousseau pointed out that if the nerves of the arms were compressed that it would cause the hand to assume the characteristic contraction of tetany.

The presence of either of these signs is diagnostic of tetany.

Chvostek's sign is more frequently used for diagnostic purposes; there is some objection to the common use of Trousseau's as it is more painful and might inaugurate an attack of laryngospasm.

Spasmophilia tends to run a prolonged course and the progress of the disease is extremely irregular.

Treatment. The prophylactic treatment consists of maternal nursing, sunlight and fresh air.

Dietetic. The most valuable of curative agents is believed to be human milk. There is little doubt that the disorder is one of nutrition and improper feeding has an important place in the etiology, and the return of the patient to breast feeding does lessen the mechanical and electrical irritability.

When breast feeding is impossible there appears to be no special milk diet which is to be recommended for all cases; although it is generally conceded that the whey of cow's milk is an element of danger. It is advisable to use other than milk as soon as possible and eggs and meat juices are early substituted for the milk; cereals, bread, butter and vegetables given at an early age.

Medicinally the calcium salts have been used rather generally and those who were the most enthusiastic for their use still maintain that the failure was due to insufficient dosage. That where five grains were given three times a day, twenty to thirty grains should have been given. Calcium lactate and calcium chloride are the salts most frequently used.

Cod-liver oil with phosphorus is recommended as is also the parathyroid extract.

For the attack it is recommended that the alimentary canal be well cleared by a full dose of castor oil followed by the giving of bromides and chloral.

All food should be immediately stopped and only water be given for twenty-four hours.

There is a large group of these cases that occur in the newborn that may be diagnosed as spasmophilia both by the mechanical and electrical reactions.

These cases on going to post mortem show no other cause of death.

These children are usually normal children at birth, but at the end of twenty-four to forty-eight hours they show signs of spasmophilia. The form which these cases assume is usually either the eclamptic or the laryngospasm type.

About four years ago there appeared an abstract in the *Journal A. M. A.*, in which these cases were described and the author recommended the giving of these cases two ounces of water every two hours by nasal feeding.

As the prognosis in these cases prior to that had been far from satisfactory it seemed best to try the treatment, as the author was enthusiastic and gave quite a glowing account of the results obtained.

Since that time this treatment has been the routine treatment in all cases, with a considerable degree of success. The treatment has been modified to the extent of adding five grains of citrate of soda to each feeding.

What effect other than the giving of plenty of water it has is not apparent; but it was assumed that there might be some stimulation of the solar plexus and for this reason the water used, had simply the chill taken out so that there was a temperature as well as a mechanical shock.

With this treatment no other drugs were used and the irritability disappeared in twelve to twenty-four hours.

Of the unsuccessful cases it may be said that the treatment was not carried out either because of too early termination of the case, or the inability from one cause or another to have the feedings given.

155 North Ridgeland Ave.

THE INFLUENZA AND ITS RELATION TO SEPTIC LARYNGITIS.

CHARLES H. LONG, M. D.
CHICAGO

The stirring events of the last five years have been followed by a very infectious disease—the so-called "influenza." It has traversed most of the habitable globe; attacking the rich, the poor,

the old and the young irrespectively. Directly or indirectly it has been the cause of more deaths than have occurred on all the battle fields of Europe during the late terrible conflict. But this has ever been so; for tradition informs us that epidemics of some devastating disease has followed in the wake of every great war that the world has known.

The press, both lay and medical, has published volumes containing an immense amount of information on the influenza's various phases, etiology and treatment; but up to the present time no investigator has supplied us with a positive proof of its cause nor a specific remedy for its cure. Although many observers have furnished plausible evidence that the Bacillus of Pfeiffer or a filterable virus—or both, are the true causative agents of this disease, there are others equally certain that neither this organism nor its virus are in any way responsible.

Julia T. Parker of New York, experimenting on rabbits, claims that the Bacillus influenza generates a filterable virus which is rapidly produced, quick to deteriorate, and capable of producing immunity; and that the serum of these immune animals is antitoxic—while on the other hand, Schofieldt and Cynn experimenting on humans were not able to verify her experiments.

After a most thorough sifting of all the latest reports at my command, the consensus of opinion would eliminate the Pfeiffer Bacillus as a factor either directly or indirectly responsible for the present pandemic disorder. Nearly every one admits it is a disease developed from some specific infection similar to that of cholera, typhoid, measels, or whooping-cough; that it is carried from place to place by persons, and that its spread is due to its great infectivity, its short period of incubation, missed and obscure cases, the absence of timely prophylactic measures; and that immunity can be secured for at least two months by a previous attack.

After all that has been said and all the work that is being done it would not be surprising if some one would make the discovery that the Bacillus influenza is in some way concerned with the disease; and that either a new or more active and virulent strain had been evolved, or that some new processes may be developed to prove its presence.

The clinical symptoms of influenza are modified in accordance with the organs affected, the species of bacteria present, and the resistance of the tissues. For instance, the nasal sinuses, the tonsils, pharynx, larynx and bronchi may become infected one after the other, or the whole respiratory tract may be involved at the same time. In the slowly spreading type we have more time to intelligently study our cases and in so doing think we make for a more favorable prognosis. Where the acute fulminating types attack with lightning rapidity, life itself is periled before any effective treatment can be applied. When either of these types get a foothold in the larynx it is always a serious matter; very moderate inflammatory conditions in this location may cause suffocation and death when least expected. The bacterial factor is always important in the treatment and prognosis—when a specific organism such as Klebs-Loeffler or tubercle bacilli are found, we at once have recourse to a routine treatment; but when the septic process is due to more specific variations of pathologic microorganisms such as the streptococcus, staphylococcus, pneumococcus, and a host of others, we are more or less helpless in our efforts at applying exact and scientific treatment. We may use a "polyvalent" serum, or be ready with intubation or tracheotomy in the lightning cases; while in the slowly spreading and more extended cases we make every provision for emergencies—not neglecting autogenous vaccines nor other general aids to hasten recovery.

The following case commencing as an influenza, presents symptoms of a "cross infection," spreading from one structure to another, ever increasing in virulence until on reaching the larynx it nearly terminated his existence by suffocation—the septic condition being so severe:

On October 31, 1918, L. P. N., male, a ship-carpenter, aged fifty-two, was referred to me by a tuberculosis clinic thirty-four days after the initial attack. The patient complained of frequent and prolonged attacks of coughing with difficulty in breathing and swallowing. September 27, 1918, while pursuing his duties at the shipyards, he became so ill that he had to go home to bed. He suffered chills, headache, and a sore throat. With the aid of a mirror he examined his throat and discovered white spots on the left tonsil. After three or four days in bed and the application of home remedies he resumed work. October fourth he suffered a relapse, the same symptoms recurring. Examining his throat again he found the right tonsil covered with white spots. Becoming alarmed at his condition he called a physician who made a diagnosis of influenza. He now developed a cough with a considerable amount of expectoration, though otherwise he was fairly comfortable. After a few days, October 25, the cough and expectoration became intolerable and he changed doctors. A few days later with no change for the better, he decided to

dispense with medical aid altogether and try going back to work, as he expressed it—"to work the sickness off." But he found this impossible, the coughing, choking, and great prostration compelled him to abandon all work and again seek medical aid. Fearing that his cough was tubercular, he visited a tuberculosis clinic where he was advised to consult a throat specialist. On October 27 I found him suffering from paroxysms of coughing, expectorating great quantities of frothy mucopurulent secretions—often streaked with blood. The voice was husky and the respirations labored. The throat was so sensitive and irritated that cocaine was used in the examination of the larynx. The epiglottis was moderately puffed and beneath it the tissues were edematous and covered with a slimy sticky secretion which obscured a view of the vocal cords. His general appearance suggested great physical distress. The features were pinched and wan; the lips were blue; he was nearly exhausted from lack of food and loss of sleep. The coughing had been almost incessant for the last forty-eight hours, and swallowing was so painful that he preferred hunger to the pain.

Treatment—The patient was immediately sent to the hospital. The examination of chest, blood, and urine were normal. The sputum contained pneumococci, Aside from rest in bed and an expectant plan of treatment nothing was done. To our great surprise within a couple of days the expectoration suddenly ceased, also the cough, and he commenced to eat and swallow without distress—and the patient was well.

Conclusion—While the obituary columns of our daily papers are teaming with deaths, believed to be due to influenza, we as physicians know that this disease is but the indirect cause—it is the complications and sequences that kill. This history of this case would seem to indicate a simple bacterial infection of the pneumococcus species, which succeeded or accompanied the attack in the nose of the influenza organism then slowly extending to adjacent parts, it developed symptoms more or less serious until finally it reached the larynx; having by its devitalizing process so diminished the power of resistance that it induced a severe septic infiltration. Influenza diminishes the power of resistance of the tissue elements, a fact which very possibly predisposed toward this acute edema. Again the rapid abatement of all symptoms, and the patient's rapid recovery with no other treatment but rest in bed and good nursing, is characteristic of septic laryngitis, if dissolution has not already occurred. It matters little what organism is present as they all produce the same kind of inflammation in the larynx and the gravest results may seem impending when quick retrogressive changes may occur. On the other hand, sudden suffocation may appear and unless instant relief is at hand, in the way of intubation or tracheotomy, death will result. Therefore it behooves us to be prepared for any emergency.

30 N. Michigan avenue.

ACUTE MASTOIDITIS: ITS ETIOLOGY, PATHOLOGY, DIAGNOSIS AND TREATMENT.*

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CHICAGO.

Considerable difference of opinion may arise among otologists in the interpretation of the various symptoms encountered in acute mastoiditis, but practically all are agreed on the following propositions:

1. That the majority of acute mastoiditis cases are chargeable to an extension of a suppurative otitis media to the mastoid cells.

2. That the majority of suppurative middle ear infections are caused by diseased processes in the nose, throat, and nasopharynx.

3. That a moderate amount of mastoid tenderness and a varying degree of mastoid involvement is present in the majority of cases of acute middle ear suppurations, but this mastoid infection and tenderness, if early and adequate drainage be provided may, unless other determining symptoms develop, be accepted without alarm for two to three days, and does not, during this period of observation, demand a mastoid operation.

4. That in addition to the virulence of the infection and resistance of the patient, the particular "build" or architecture of the individual mastoid process is an important element in estimating the diagnosis and interpreting the clinical development.

5. That the mastoid of infancy and early childhood is anatomically essentially different from that of the adult; that these anatomical variations are of determining influence in inaugurating and extending such infections, and must be reckoned with in interpreting their particular symptomatology.

A comprehensive and practical conception of this disease in the light of these facts would picture the mastoid process as an integral part of the middle ear and upper respiratory tract; its in-

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tegrity depending to a large extent upon their healthy condition, and the infection and complications which attack it, being influenced by the particular anatomical vagaries and relations of these structures.

SUMMARY OF ANATOMICAL FEATURES WHICH INFLUENCE AND CONTRIBUTE TO MASTOID INFECTION AND ITS COMPLICATION.

The frequency of infected tonsils, adenoids and nose and throat disorders in infants and early childhood undoubtedly predisposes them to middle ear infection and consequent mastoid involvement. The fact that the Eustachian tube in early life is shorter, wider and more horizontal than in the adult affords a favorable route for the transmission of such infections to the middle ear. (Fig. 1.) The exceeding thinness and frequent dehiscences of the roof of the middle ear, their perforation by blood vessels, the intimate vascular connections of tympanum and mastoid with the cranial cavity and its sinuses, provide an easily accessible path for the extension of middle ear and mastoid infections to the cranial contents and explain the frequency of meningeal irritation, meningitis, brain abscess, and sinus thrombosis often met with in these infections. The not uncommon incompleteness of the Rivinian notch and the lack of union of the different sutures of the bone, likewise offer vulnerable points for extension of an infective process to mastoid and cranial cavity. The intimate and relatively large connection of the mastoid antrum to the tympanic vault, as well as the superficial location of the antrum and softness of mastoid structure, in the young, especially conduces to extension of infections from middle ear and perforation of mastoid cortex with consequent production of subperiosteal abscess behind the auricle. (Fig. 2.) Thinness of the mastoid wall in the region of the digastric fossa invites perforation with the development of abscess in the soft tissues of the neck. The walls of the facial canal in infants are not only very thin, but not uncommonly are incomplete and expose the nerve to inflammatory exudations, which explains the frequency of facial paralysis in children. The relatively superficial course of the nerve in the mastoid exposes it likewise to both pathologic and traumatic injury. The presence of mastoid cells on the posterior wall of the external canal explains the mastoid symptoms which are the almost constant accompaniment of an acute otitis media. In mastoids of the pneumatic type a purulent process is more likely to progress rapidly than in those of the sclerotic type. (Fig. 3.)

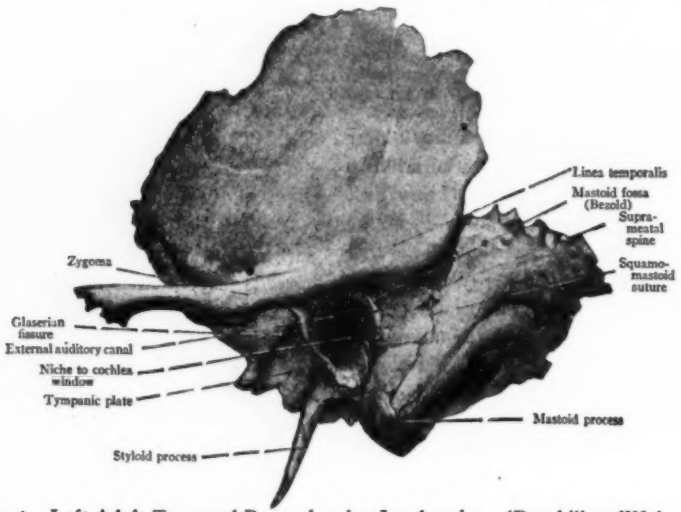

Fig. 1. Left Adult Temporal Bone, showing Landmarks. (Barnhill and Wales.)

ETIOLOGY.

Secondary Acute Mastoiditis. As might be expected, from the general relation of the mastoid process, acute mastoiditis is almost always secondary to infection and suppuration of the middle ear. In all cases of acute otitis media there

is more or less inflammatory involvement of the mastoid antrum, and not infrequently pus is present in the mastoid cells. The etiological factors of acute suppurative otitis media play, therefore, a most important role in the production of acute involvement of the process. The factors in this production may be systemic in origin, as an otitis accompanying the exanthemata, scarlatina, diphtheria, epidemic influenza, typhus or typhoid fever; or local, as an accompaniment of acute rhinitis, tonsillitis, pharyngitis or quinsy. Bacon observes an increase in the number of mastoid cases since influenza has become prevalent. Predisposing causes are: intranasal irregularities, adenoids, diseased tonsils, improperly treated middle ear suppurations, resulting in inefficient drainage, blowing the nose during an attack of acute rhinitis, sniffing of salt and water, improper use of nasal douche, a local minoris resistenciæ, occasioned by severe illness, during which a suppurative middle ear trouble develops, and a constitutional dyscrasia. Rarely an inflammation of the external auditory canal may extend to the mastoid. Of all the causes enumerated, insufficient drainage of a suppurating middle ear is the one most commonly encountered, and from an anatomical standpoint, the most logical one to be anticipated. (Fig. 4.)

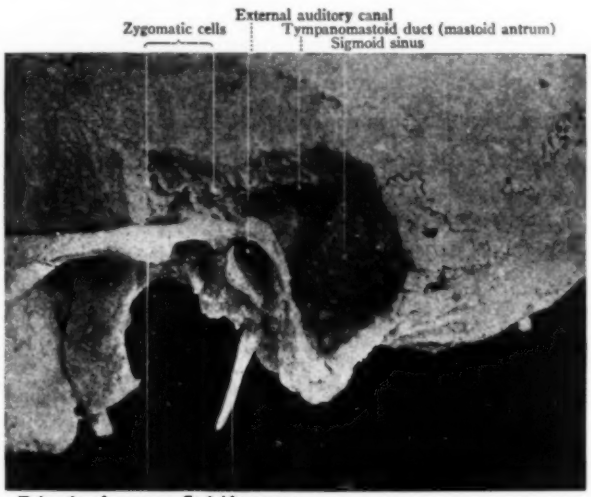

Fig. 2. Skull showing Great Development of Zygomatic Cells. (Barnhill and Wales.)

PATHOLOGY

Three stages are commonly recognized in the pathologic process: 1st, the stage of congestion and exudation of serum; 2nd, the stage of pus production, and 3rd, the stage of cell destruction and granulation formation. In the first stage, the muco-periosteal lining of the cells becomes congested and an inflammatory reaction occurs, with exudation of serum; the septa between the cells remain intact; the cells are red and filled with serum, tinted with blood. In the second stage the cells contain pus, the septa being preserved. In the third stage the septa break down, granulations develop; pus is formed in too great a quantity to be drained through the tympanic opening and endeavors to find an exit in the path of least resistance.

DIAGNOSIS

In arriving at a diagnosis, it is important to obtain all the data possible before reaching a positive conclusion. Seldom is it possible, except in exceptional instances, to form a correct opinion based upon the presence or absence of a single symptom. A careful history should be taken, the general physical condition of the patient noted, and a careful examination made of the mastoid, the external canal and drum membrane.

Secondary Mastoiditis. The presence of acute mastoiditis secondary to an acute suppurative otitis media is usually manifested by clinical features of a positive and definite character. The same statement holds good for an acute exacerbation of a chronic suppurating middle ear. Be-

fore making the actual examination two important details should be carefully investigated; 1st, the history of the disease; 2nd, the general condition of the patient.

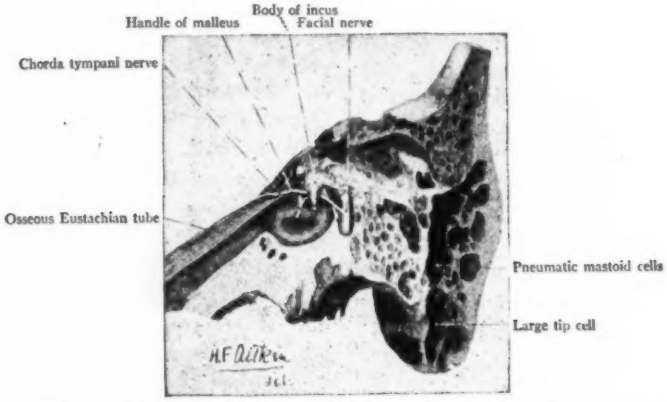

Fig. 3. Right Temporal Bone. Vertical section through middle ear, viewed from within. (Barnhill and Wales.)

History. Experience has demonstrated that acute suppurative otitis media produced by an acute simple rhinitis or rhino-pharyngitis is less likely to involve the mastoid; while if the middle ear suppuration accompanies the exanthemata, diphtheria, septic tonsillitis, typhus or typhoid fever, influenza, diabetes, or Bright's disease, the dangers of mastoid involvement are greatly increased. *The general condition of the patient* is suggestive. An uncomplicated attack of acute suppurative otitis media with good drainage, usually subsides in a few days and the patient rapidly regains the appetite and healthy appearance; prolonged prostration, loss of appetite, anemic appearance, general lassitude or restlessness, and the unmistakable physiognomy of the seriously ill would strongly point to a more extensive disturbance than that of the middle ear infection alone. The following diagnostic data are encountered individually, collectively or in

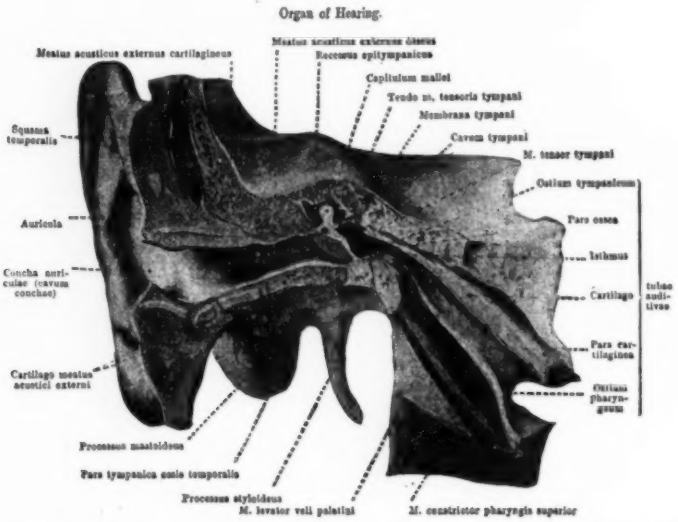

Fig. 4. General View of the Right External Ear and Middle Ear, looked at from in front and externally. (The external ear has been opened by a frontal section; the tympanic Cavity and Eustachian tube have been opened by a vertical section carried obliquely, lateralward and dorsalward. Spalteholz.)

various selective groupings according to the stage and severity of the invasion; 1st, pain in the mastoid; 2nd, tenderness on pressure over the process; 3rd, discharge from the external meatus; 4th, temperature; 5th, changes in the tissue over the mastoid; 6th, sagging of the postero-superior

Fig. 5. Points of Mastoid Tenderness in Acute Mastoiditis. The uppermost X is over the site of the mastoid antrum, the lower X over the mastoid tip, and the posterior one is over the point of exit of the mastoid vein. The mastoid region has been shaved, preparatory to operation. (Barnhill and Wales.)

mental wall; 7th, changes in the drum membrane; 8th, pulsating light reflex at the point of perforation in the drum membrane; 9th, blood examination showing leucocytosis and an increase in polynuclear percentage; 10th, bacteriologic examination of aural discharge disclosing various micro-organisms; 11th, roentgenograms exhibiting changes in the process. In estimating the value of any particular symptom or group of symptoms, the dominant surgical principle, retention of pus and absorption of toxins as the underlying basis of the disease, must be kept constantly in mind. A brief analysis of these symptoms is of value.

1. *Pain.* This symptom is influenced by the temperament of the patient; a child or a neurotic will exaggerate it, while a phlegmatic individual will underestimate it. It is almost always, in greater or less degree, a constant accompaniment of mastoid infection, though cases are met with in which it is absent. It may not be confined to the process itself, but radiates upward over the temporal, backward over the occipital regions and downward towards the teeth. The patient often describes it as a "sickening," "exhausting" pain or "soreness," deep, boring in character, usually worse at night, causing sleeplessness and insomnia. When the discharge is abundant the pain is usually less; when it diminishes or ceases, the pain is increased. Should it be not relieved by proper drainage or measures or return after being absent for several days, it is an indication that the process is advancing and that operation is advisable.

2. *Tenderness on Pressure.* According to their relative significance and frequency Whiting enumerates four tender points: 1st, antrum; 2nd, tip; 3rd, the point of emergence of the emissary vein; 4th, the pre-mastoid lamina, or posterior wall of bony meatus (Fig. 5).

In estimating the tenderness over a suspected

Fig. 6. Projection of the Auricule in Mastoiditis with Postaural Abscess. The collection of pus is above and behind the auricular attachment. Compare the condition with that produced by a rupture of pus into the digastric fossa (Fig. 7). Note also "adenoid expression." (Barnhill and Wales.)

mastoid, the healthy mastoid should always be the basis for comparison.

The period of onset of the tenderness and its behavior is important. With the subsidence of the pain and discharge, it should grow less, should it increase it indicates an advance of the

process. If it is absent at the beginning of a middle ear suppuration and appears later, it usually indicates mastoid involvement. It commonly reaches its maximum during the early vascular stage, and is more marked in mastoids of the pneumatic type with thin cortex, than in those of sclerotic type with thick cortex.

3. *Discharge from the External Meatus.* The majority of acute mastoiditis cases have an associated discharge from the external meatus. Deficient drainage from the middle ear usually produces an exaggeration of the mastoid symptoms. Diminution of the discharge should be associated with the reduction of pain and tenderness in and over the mastoid and perceptible improvement in the patient's general condition in order to justify the conclusion that the disease is progressing favorably. If the free drainage, in considerable amount, abruptly ceases, returning a few hours or a day or so later, the patient's other symptoms meanwhile exhibiting no improvement, a mastoid involvement is to be apprehended. A profuse discharge from the external meatus continuing for more than one week, particularly if associated

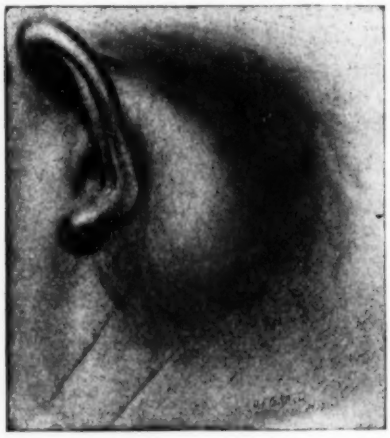

Fig. 7. Bezold's Abscess. Compare the position of the auricle and of the tumefaction with that produced by rupture through the mastoid cortex over the site of the antrum as shown in Fig. 6. (Barnhill and Wales.)

with the continuance of the mastoid and other general symptoms, and more especially if the local and general symptoms increase in severity, point with almost unvarying certainty to acute mastoiditis.

4. *Temperature.* Some difference of opinion exists as to the value of this symptom. Bacon states, "I have never seen a case of acute inflammation of the mastoid cells without slight elevation of temperature, except in one instance." Numerous cases of extensive necrosis of the mastoid cells are reported in which the temperature

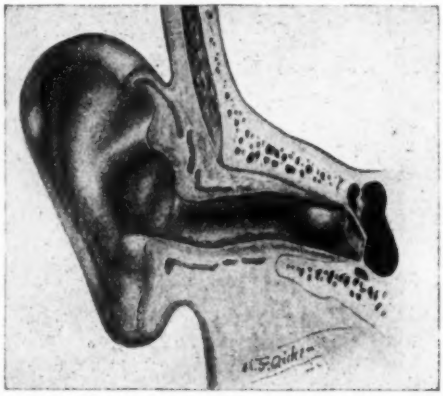

Fig. 8. Sagging of the Postero-Superior Wall at the Inner End of the External Auditory Meatus, the result of Mastoid Suppuration in the adjacent Pneumatic Cells of the Mastoid. Compare location of the sagging with tumefaction of canal due to furuncle. (Fig. 9.) (Barnhill and Wales.)

has run a normal course, and its absence, therefore, is not to be interpreted as an indication that extensive mastoid involvement is not present.

5. *Changes in the Tissues Over the Mastoid.* Edema, redness and prominence of the auricle are relatively late manifestations of acute mastoiditis. Edema is more often characteristic of a furuncle of the external canal than of mastoiditis. The pus may perforate the cortex producing a sub-periosteal abscess, which occurs quite frequently in infancy and early childhood (Fig. 6). The perforation of the cortex is usually located one-quarter to one cm. behind the posterior canal wall. In such cases the region is swollen and red, the auricle projects from the head almost at right angles, the fold where the concha is attached is absent, and a mass in which fluctuation may be demonstrated is presented. Not uncommonly the periosteum and overlying mastoid tissues become involved without perforation, by extension of the mastoid inflammation through the cortex, causing edema and swelling which is not so pronounced, does not cause such conspicuous auricular displacement as that produced by a sub-

periosteal abscess. In the type designated, "Bezold's mastoiditis," the pus has penetrated the mastoid tip at the digastric fossa. In this form the swelling is situated just below the tip and the soft tissues of the neck may be infiltrated. (Fig. 7.)

6. *Sagging of the Postero-Superior Meatal Wall.* The majority of observers agree that this is one of the decisive symptoms of the presence of an acute mastoiditis, many considering it a pathognomonic symptom, demanding immediate mastoid operation. (Fig. 8.) The explanation of the symptom is the anatomical fact that the upper wall of the external meatus close to the drum membrane constitutes the floor of the aditus ad antrum and that pneumatic spaces are usually richly distributed along the anterior face of the process which constitutes the posterior wall of the canal. When the cells of this locality are distended by an inflammatory exudate or pus, sagging of this portion of the canal takes place. Associated with this symptom the fundus of the canal is much reduced in size and only a portion of the drum is visible. The lumen of the canal at other points is normal.

7. *Changes in the Drum Membrane.* The drum is usually perforated at some point or is red, swollen and bulging. Pronounced bulging of the upper and posterior portion of the drum is frequently associated with the sagging of the external canal and is due to the same cause. If the perforation is in Shrapnell's membrane, it is indicative of an acute exacerbation of a chronic otorrhea. (Fig. 9.)

8. *Pulsating Light Reflex.* Politzer states that if a pulsating light reflex at the point of perforation in the drum membrane continues to be seen two weeks from the date of rupture and the ear is still discharging, a mastoid abscess is present.

9. *Blood Examination.* Estimates of the degree of leucocytosis and the polynuclear percentage present in a given case are held, by most observers, to be of doubtful value as an aid to diagnosis. It is probable that a differential blood count which exhibits both a marked leucocytosis and high polynuclear percentage is of value in suggesting a mastoid involvement, taken in connection with other confirmatory symptoms and signs.

10. *Bacteriological Examination of the Aural Discharge.* This occupies the same position of doubtful value as a diagnostic measure as the differential blood count. The usual micro-organisms found are the streptococcus, the pneumococcus, the staphylococcus, Friedlander's bacillus, and mixed infections.

11. *Roentgenograms of the Mastoid* as an aid to diagnosis are, when properly taken and correctly interpreted, of value. Several plates taken at different periods may show the progress of the mastoid disease, indicated by cloudiness of the process, destruction of the septa and the presence of cavities. Taken in connection with other clinical findings they are of undoubted value and their use should be adopted as a routine measure.

In infancy and early childhood the diagnostic symptoms of acute mastoiditis frequently present

Fig. 9. Furuncle. Note its situation on the cartilaginous meatus in the outer half of the canal. Compare this location with the sagging of the inner end of the meatus due to mastoiditis. (See Fig. 8.) (Barnhill and Wales.)

some important differences from that of the adult. Nursing infants may refuse food, lose weight and suffer from diarrhea. When the drum does not perforate convulsions may develop. Pain is evidenced by restlessness, crying fits, and tossing of the head on the pillow. It is difficult to estimate the mastoid tenderness owing to the fact that the slightest touch anywhere will cause the infant to cry. In marked contrast to the adult the temperature may exhibit a distinct evening rise, often to 103° F. It is to be noted that the acute stage of suppurative otitis media in children is marked by persistent temperature and this fact, therefore,

lessens its value somewhat as an indication of a mastoid involvement. A rapid pulse is not uncommon. Convulsions, vomiting seizures, chills, etc. — symptoms suggestive of cerebral irritation—do not arouse the same apprehension in infants as in adults, because in infants and children meningeal irritations are more frequent and easily disturbed than in adults. In the infant and the young the different portions of the temporal bone may not be united, except by fibrous tissue, the outer wall of the antrum is thin and superficial; pus, therefore, may force its way through these weakened points. The "sagging" in infants under three years usually presents upon the superior wall instead of the supero-posterior

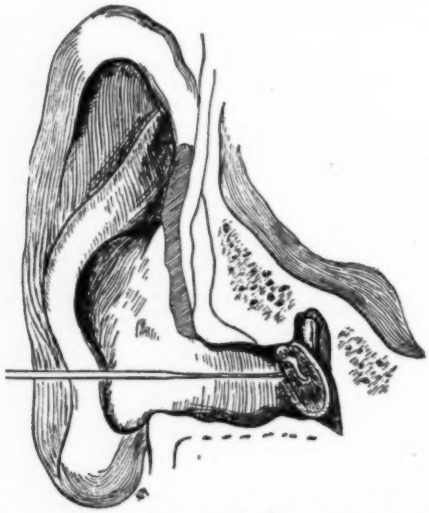

Fig. 10. Incision of Membrana Tympani. The usual location and extent of incision is indicated by the vertical line along the posterior margin of the drum; to this is commonly added the incision, along the posterior wall of the meatus, indicated by the heavier horizontal line. (Modified, from Dench's Surgery of the Ear, Keen's Surgery, Vol. iv.)

wall as in the adult, for the reason there are no cells in this locality in the infantile mastoid. Subperiosteal abscesses are more common in the young, particularly in children who are strumous or tubercular. Such abscesses are, as a rule, located above and behind the auricle. Often the drum is not perforated but bulges markedly. The external auditory canal presents a narrowed lumen caused by a periostitis of the underlying bone. Facial paralysis in tubercular children may be a complication as the Fallopian canal is not infrequently completely destroyed, their immature bone being more liable to destructive processes.

Abortive Measures. A reasonable doubt often arises as to the wisdom of instituting an immediate operative procedure on the mastoid. The paramount desire to save the patient unnecessary operation justifies a resort to abortive measures in all such cases in which operation on the mastoid is not clearly indicated. It is important to recognize that a mastoiditis, secondary to a middle ear suppuration caused by influenza, diphtheria, scarlet fever, tuberculosis, or syphilis, rarely is amenable to abortive measures, but usually requires the mastoid operation. The abortive measures comprise: free drainage, local depletion, application of cold, rest, regulation of diet and attention to the bowels. Free drainage is best secured by an early free incision of the drum membrane. Puncturing with a spear-shaped instrument is practically worthless; the small opening thus produced closes quickly and fails to provide the avenue necessary for free drainage. A free incision over the most bulging portion or in the posterior half of the drum head, extending along the posterior border of the drum from a point opposite the stapes to the lowest point of the membrane, should be done (Fig. 10). To this is often added a prolongation of the incision above and outward along the supero-posterior wall of the canal, a distance of one-quarter of an inch. Irrigation of the external canal with one to five thousand bichloride solution should precede the operation. A general anesthetic, nitrous oxide or ether, is necessary in children or very nervous individuals. Instilling a few drops of a mixture containing cocaine hydrochlorate grains five to ten; alcohol, one dram; anilin oil, one dram, is a favorite local anesthetic. In the author's experience an early and free incision of the drum has proven most effective in checking the acute middle ear infection and preventing mastoid involvement. In his opinion it must be done early to produce a decisive result, particularly in infants and children. Bulging of the drum membrane is relatively a late symptom of middle ear suppuration and one should not wait until it has appeared before deciding to incise the membrane. In all suspicious cases our most effective endeavors at prevention will be attained by a prompt free and early incision. It is often necessary

to repeat the incision should symptoms of retention appear. After incision, irrigation with various warm antiseptic solutions (boric acid, saturated solution; normal salt solution; bichloride solution, one to five thousand) are used with the two-fold purpose of promoting drainage and destroying the micro-organisms. After each irrigation the external canal, if possible, should be dried to its farthest depth with a cotton-tipped applicator and a strip of gauze (boric or plain) inserted, not packed, to the depth of the drum membrane. Under no circumstance, should the various combinations of sweet oil, glycerine or powders, etc., be used in the ear at this particular stage. In children, especially, the introduction of laudanum or cocaine "ear drops" is liable to produce toxic symptoms. Recognizing that a suppurative otitis media, upon which a mastoid involvement usually depends, is consequent upon an extension of infective processes from the nose, throat or naso-pharynx, it is of importance that proper therapeutic measures be directed throughout the treatment to the relief of these contributory conditions. An important consideration, also, in the author's opinion, is the necessity of providing complete physiologic rest for the patient during the treatment.

Local Depletion. In the early stages, this measure is advocated enthusiastically by some, while others, notably Dench, consider it worthless. In the adult, it is necessary to remove considerable blood, about four ounces. The tip and antrum are the chief sites for the application.

Bier's Hyperemic Treatment. This measure, seldom used, has not met with general favor and its therapeutic value in acute mastoiditis is of doubtful value.

Application of Cold. This may prove serviceable in the early or hyperemic stage. The methods of application are the ice-bag and Leiter coil. Politzer states that if the cold eases the pain, the continuation of the inflammation may be assumed; if it proves irritating and unpleasant, the disappearance of the inflammation is probable.

Rest, Bowels and Diet. The patient should be put to bed and calomel in broken doses or a saline administered. The diet should be light, preferably milk. Only exceptionally should morphin and similar remedies be employed, as the relief they produce tends to mask the symptoms.

Counter-irritants, as painting the mastoid with tincture of iodin, applying a blister, application of ointments of mercury and silver and the Wilde incision, are mentioned to be condemned. The chief objection to the majority of these is that the consequent soreness they produce adds an additional handicap in estimating the degree and progress of the local tenderness; while the therapeutic value of the remainder is open to question. The value of the Wilde incision is dismissed by Whiting in the following emphatic language: "Its performance at the present day is a senseless proceeding, for the reason that it is not calculated to reach the sources of the disease." Some authors claim, however, that a subperiosteal abscess, in infants and children, may originate beneath the periosteum of the meatus with no perforation of the cortex and that, in these types, a Wilde's incision is serviceable.

The author has for some time practiced the following routine measures in the management of cases of suspected acute mastoiditis in the early stages consequent upon middle ear suppurations: 1. Patient is placed in bed, preferably in a hospital, and absolute quiet insisted upon. 2. Calomel is administered, in quarter-grain doses, followed by a saline or enema. 3. Light diet. 4. If drainage through external ear is not satisfactory a free incision of drum is made and a gauze drain inserted. 5. Irrigation with hot normal salt solution, a pint every two hours. 6. A thin sterile dressing is applied over the external meatus and secured by one turn of a roller bandage; this insures surgical cleanliness, and prevents discharge from contaminating the pillow and patient. Fresh dressing is applied after each irrigation. 7. To prevent a dermatitis, unguentum zinc oxide is applied to the external canal and auricle. 8. Ice-bag or Leiter coil to mastoid region continuously for twenty-four to thirty-six hours. 9. Temperature and pulse taken every two hours. 10. Bacteriological examinations of aural discharge and blood examination made at once and repeated as often as indications suggest. 11. Roentgenograms of suspected and healthy mastoid, repeated as often as thought necessary. 12. Attention to nose and throat by spray, gargle or local application.

To be Continued

DIAGNOSIS AND TREATMENT OF GASTRIC AND DUODENAL ULCERS*

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WATERLOO, IOWA

In selecting this subject for a paper, it was not done in order that I might bring something new to your attention, but rather a plea for a more careful and thorough examination, for mistakes in correct diagnosis of these conditions are more often the result of a lack of examination than a lack of knowledge.

There is probably no one condition in the whole category of diseases for which a general practitioner is consulted so frequently as that of "stomach trouble," and the first step in the diagnosis of supposed disease of the stomach, after obtaining a good history, should be a general physical examination, in order to eliminate causes of stomach distress which originate in diseases outside of the digestive tract, such as the heart, kidneys, cirrhosis of the liver, and luetic infections, etc. We should then eliminate the non-surgical diseases, such as neurosis, prolapse, dyspepsia, etc., while next in order come diseases of the digestive tract outside of the stomach, which might give stomach symptoms; for example, gall bladder, appendix, intussusception, etc. The diseases which can rightfully be attributed to the stomach must be differentiated from all of these possible conditions by careful examination.

In this particular class of cases the history is of great importance, particularly in relation to early symptoms when characteristics of disease are not obscured by secondary complications. The relation of food to the relief or production of the symptoms should be carefully noted. Next in importance in the routine should be the use of the stomach tube, and a gross examination of the material drawn off should be made. In ulcer, this material is sour and pungent, in contrast to the coffee ground liquids so frequently found in cancer. A chemical examination to determine the amount of acids has considerable value, but only when taken in conjunction with the clinical findings; a high acid finding with hypersecretion is generally in favor of benign disease, however, the converse is less true as regards malignancy.

*Read at a meeting of the Tri-State District Medical Society, at Rockford, Sept., 1919.

In observing the relation which food has to ulcer, we find that, previous to the stage of obstruction, food gives relief to pain which is most intense when the stomach is empty. The patient takes food or soda bicarbonate to get relief, or wakes up at a certain hour in the night with a bitter, sour feeling in the stomach and raises up a few mouthfulls of this burning secretion.

In certain groups of cases the patients do not complain of severe pain, but rather a gnawing, burning distress, coming on at regular intervals after eating, and it is this time of pain or distress and the control of it that are characteristic and diagnostic.

In years past, blood in the gastric contents or in the stool was generally considered a pathognomonic symptom of ulcer, while today we look upon it only as an aid in differential diagnosis, and of much less importance than is popularly believed. One of the peculiar features of ulcer of the stomach and duodenum is the deceptive improvement which is so often mistaken for a cure, and which we are told by the Mayos has apparently little relation to the actual condition of the ulcer itself. After serious symptoms, lasting for some weeks, the patient may have complete relief for weeks, or months, and yet, if operated upon during the quiescent period, the ulcer will almost regularly be found open and unhealed. These supposed cures might be compared to each recurring attack of gall stones or appendicitis.

It is well to remember that over 90 per cent., according to Bainbridge of New York, of stomach cases have their etiology either in pyloric or duodenal ulcers, gall bladder disease or chronic appendicitis, leaving only 10 per cent. to cover cancer, atonic dyspepsia, prolapse, neurosis, etc.

What are the causes or conditions that produce ulcer? First, anything that will cause a trauma, or solution of continuity of the mucus membrane of the stomach, may be followed by ulcer. Second, too hot or too cold food and the initial lesion of the peptic ulcer is due to vascular changes. The sub-tonic stomach of gastric neurosis may lead to these changes, and the altered excess or diminished internal secretions play a large role in bringing about these conditions which terminate in ulcer, while Rosenow has shown a large percentage of cases suffering from focal infections also have ulcer of the stomach and duodenum.

Ulcers can be divided into the acute and

chronic. The chief dangers of the acute variety depend upon the serious complication, hemorrhage and perforation common to each. Chronic ulcer, in either stomach or duodenum, is the ordinary cause of indigestion which has pain as its prominent symptom. Our diagnosis of these cases must all be made by exclusion and no single condition which could possibly have any bearing on a particular case should be considered too insignificant for serious thought.

In chronic appendicitis we find symptoms of stomach trouble, indigestion, and perhaps that is all that is complained of, but here we find a different condition. The taking of food produces these symptoms for which our advice has been sought. It is very hard at times to decide between a chronic appendix and an ulcer obscured by secondary complications, but by studying the early history of the case it may be possible to come to a correct conclusion. One symptom that I have always found to be reliable in differentiating these two conditions is to make firm pressure over the appendix, which will cause a darting pain in the epigastrium.

In gall bladder disease the tenderness is over the gall bladder and away from the epigastrium. The pain is more severe and sudden in the passage of a gall stone. These attacks are irregular in occurrence and it is sometimes possible to get a history of jaundice. It is here, sometimes, we are called upon to differentiate a gall stone attach from a perforation of an ulcer, and a history, if well obtained, will generally start us on the right road. In gall stone attacks, first, you do not have the shock attending perforated ulcer; second, the pulse is not so rapid; third, the contents of the stomach contains bile instead of blood; fourth, the abdominal walls do not have the board-like rigidity, and, as a rule, gall stone patients are older, though occasionally gall stones are found in very young people. One case, I remember distinctly, had a gall bladder full of stones at twenty years of age.

In cancer, or cancer ingrafted upon an ulcer, the pain as a rule is not so severe, however, it is more constant and is not relieved so easily by vomiting or restrictions in diet. The cancer patient loses weight very rapidly, has a loss of appetite, while the ulcer case, with obstruction, is hungry and would eat if he were not afraid of the pain which he knows will follow the taking of food. In many cases it will be the general appearance of the patient that will be the deciding factor in making a correct diagnosis. Cancer, in certain portions of the stomach which do not cause obstruction, seldom produces symptoms urgent enough to send a patient to consult a doctor in time for an early diagnosis. But if we will use all the knowledge we have, examine our cases carefully and thoroughly, study them systematically, use the laboratory and x-ray as a check to prove our conclusions, fewer exploratory incisions will be made and more definite knowledge will be had for the proper work to be done when once the abdomen is open.

Let us not forget the diseases outside of the digestive tract and in this connection permit me to call attention to the fact that blood voided by the mouth or the bowel does not always mean ulcer. How many here have been humiliated to find they have been treating nephritis for ulcer? I have, and the most prominent symptoms in that case were indigestion and large amounts of blood in the stool. Why was I misled? First, because I depended upon an inexperienced person to analyze the urine. Second, because at that time most of my thoughts were occupied in an unsystematized way to make both ends meet financially. I hope each Doctor who is called to care for a case, and whose brain is occupied in some mercenary gain, be it a sale of land or cattle, may get the same stinging rebuke that I did when our good friend, Dr. Graham of Rochester, to whom this case was referred, said, "Is your Doctor blind?" Let us use our brains and apply the knowledge that we have, examine the cases that come to us instead of handing out a few pellets or prescribing a mixture that we would not take ourselves in order that the next case in waiting will not get away.

Roentgenology is making rapid strides in aiding in the diagnosis of disease in these hidden recesses, but we must not rely on the x-ray findings alone, for it might be a chronic ulcer, minute in size, in the duodenum without obstruction, without deformity, and in such a case, I believe anyone would hesitate to open an abdomen on what the x-ray revealed. Like the chemical and microscopical analysis of the stomach contents, they are of value only when taken in conjunction with the clinical findings, and these results given to us by an expert. I do not wish to be understood as criticising these valuable aids in diag-

nosis, but rather our faulty knowledge to interpret correctly the findings.

The time is coming very fast when the treatment of gastric and duodenal ulcers can be summed up in one word, "Gastro-Enterostomy," and all cases which have resisted a fair trial of medical measures, should be advised and have the opportunity of obtaining relief and a cure by this proven surgical method. It seems to me the medical profession should recognize these facts and give the patient a chance.

EARLY RECOGNITION AND TREATMENT OF INTUSSUSCEPTION*

C. S. Krause, M. D.
CEDAR RAPIDS, IOWA

I have chosen this subject because of the great mortality in those cases which are not recognized early, and are brought under the care of the surgeon when practically moribund. In this paper I will refer only to the acute type, though there is a chronic form, in which early diagnosis and treatment is not so urgent.

Intussusception is an invagination of a part of the gut into its own lumen. Mucous membrane is thus brought in contact with mucous membrane, and peritoneum with peritoneum, forming three layers, entering, receiving and returning. The condition may be illustrated by pushing the end of a glove finger into the lower portion. It is more common in children, about one-third of the cases occurring during the first year, and nearly all cases before the tenth. The most common location is in the ileocecal region, the ileocecal valve forming the head of intussusception. Most authors agree that the mechanism of intussusception consists of a local spasm of the intestine, drawing the gut up over a portion of the normal intestine. This invagination acts as a foreign body, causing further spasmodic contraction and forcing the intussusception farther along. Pressure is brought upon the mesenteric vessels, producing engorgement of the tissues. A vicious circle is formed, resulting in more swelling of the tissues, and more constriction of the mesenteric vessels. Accompanying this process an exudation of lymph and fibrin takes place, forming adhesions between the layers of intussusception. With the complete cutting off of the blood supply gangrene will take place early. The bowel above also becomes distended with gas and toxic material.

In cases of early death from shock, there is little pathology beyond engorgement, but in the later stages a sausage shaped tumor markedly congested and indurated is found. Peritonitis, sloughing and necrosis may have taken place.

Among the exciting causes that may be mentioned, are ingestion of irritating foods, contusions of the abdomen, chronic inflammation of the intestinal mucosa and the various tumors.

The symptoms of this condition are characteristic, there is a history of acute onset, consisting of violent colicky pains, which may or may not be localized; early and persistent vomiting in most cases; usually constipation or small frequent bowel movements with tenesmus; but the most important symptom is the early passage of blood in the stools. The general appearance of the patient is typical, the expression being anxious, the features pinched and prostration early. There may be little or no fever, but the pulse becomes rapid and feeble. Examination of the abdomen reveals some distention and in many cases a sausage shaped tumor may be felt. Osler says this occurs in one third of the cases during the first day. Rectal examination should always be made in suspected cases, because many times where there is no tumor palpable through the abdominal wall, the intussusception may be felt through the rectum.

Of all the internal obstructions in children, this is the most readily diagnosed. It must be differentiated from the various other forms of obstruction, acute appendicitis and Meckel's diverticulum, but especially from acute dysentery. However, the more violent outset, the earlier passage of blood and the presence of tumor are peculiar to intussusception. Microscopical examination of the bloody mucus of intussusception often reveals unchanged sloughs of intestinal epithelium, while that from dysentery is full of leucocytes and bacteria. There is also an initial fever in dysentery which is not present in acute intussusception.

The treatment has but one object, and that, to reduce the intussusception as early as possible. I believe that this can be accomplished in most cases during the first twenty-four to thirty-six hours or in those cases in which pathological

*Read at the meeting of the Tri-State District Medical Society at Rockford, Sept., 1919

changes are not marked. One may attempt first, if the case is seen early, to reduce the intussusception by a rectal injection of a quart of lukewarm water or saline. The reduction is indicated by a rumbling sound, the disappearance of the tumor, relief of symptoms and possible copious bowel movement. Following this the case must be carefully watched as there is great danger of recurrence. The possibility of this is lessened by inhibiting intestinal peristalsis with opium. This together with liquid nourishment should be kept up for several days. Fisher says that there are practically no recoveries without intervention. A fatal result from shock may occur within one-half day of the onset, but as a rule it takes from three to six days.

One should not tarry too long in attempting this sort of reduction, because every hour of delay makes the possibility of successful reduction less and less. Once incarceration and adhesions are formed it is practically impossible to perform a reduction and protect the life of the individual. In all cases where there is not an immediate reduction by the above method, operative treatment should be instituted at once. The prognosis of these cases depends absolutely upon the early reduction. In those cases seen and intussusception reduced before any marked change has taken place in the gut, there should be a high percentage of recoveries.

Earliest possible reduction should be made in all cases because with delay:

1. The general condition of the patient rapidly declines because of increasing toxicity from the absorption of toxic material.

2. This class of patients, generally children, do not withstand shock following the radical operation made necessary by delay.

3. Delay adds to the possibility of strangulation and consequent gangrene.

4. Reduction is made difficult if not impossible if one waits until there has been considerable formation of lymph and fibrin.

Personally I have but three cases to report, one of which was not operated on, one where there was some delay in operating, and a third where an immediate operation was performed.

Case 1. The patient, a child, aged ten months, was brought to the office of a practitioner in a small country town with the history of a sudden onset of severe colicky pains. Anodyne was given and the patient sent home. During the night, several enemas were given, and considerable fresh blood noticed in the results. The doctor was called again, nine hours later, and the case referred to the hospital.

Examination revealed no tumor, and the child was apparently comfortable with a temperature of 99, pulse 140, and respirations 38. Following an enema, some more bright blood was passed.

This case was not correctly diagnosed because of the absence of tumor, and the apparent ease of the patient resulting from the anodyne, and was treated as an acute dysentery. The patient died on the third day, in a very toxic condition with a temperature of 101.2, pulse 206, respirations 42, and with no abnormal physical signs other than a slight abdominal distention. Microscopical examination of the stools was not made. Post mortem examination revealed an ilocecal intussusception with marked incarceration of the telescoped bowel.

Case 2. A nursing baby of six months old, with a history of sudden onset of abdominal colic. When seen, the baby was screaming, with knees drawn up on the abdomen, profusely vomiting, but with no fever. hTe dector gave an enema with result of considerable bright red blood. The child became quiet in about twelve hours, excepting upon being disturbed. We saw the case in consultation, sixteen hours after the onset, and found considerable tenderness over the ascending and transverse colon, but no tumor either by abdominal or rectal examination.

We made a probable diagnosis of intussusception because of the history and operated. The head of the intussusception was found in the transverse colon, it being of the ileocecal variety. Some difficulty was encountered in reduction because of the agglucination. In order to prevent recurrence, the ileom was fixed to the peritoneum and opiates given to inhibit peristalsis. An uneventful recovery resulted.

Case 3. A boy, six months old, with a sudden onset of screaming and drawing up the legs as if in great abdominal pain. A stool containing bright red blood was passed, soon after the onset. This case was seen an hour later with the above history, there was no fever, distention, vomiting or mass by abdominal palpation. Rectal examination, however, revealed a mass protruding into the rectum. This case was operated on two hours later, and the ileum found telescoped about 18 inches into the cecum. There was no agglutina-

tion or marked congestion, and the reduction was easily made with an uneventful recovery.

These three cases impress me very much; in the first it would be interesting to know whether the patient's life could have been saved if early operation had been performed. The second was operated on in time to avoid a resection and the recovery was complete. In the third, where the operation took place within four hours after onset, the results were best—the patient's general condition was good and the intussusception was reduced with practically no trauma, leaving the intestine in a normal condition. It was this case that impressed me, that if the diagnosis was made early, and the case operated on with the patient still in good condition, and before the formation of adhesions that a very great percentage of the cases would recover.

In conclusion I would strongly emphasize the dangers of delay, and personally would not recommend attempting reduction by medical treatment. I believe that our modern aseptic technique, the certainty of reduction and the more probable prevention of recurrence by surgical intervention should make us hesitate to attempt reduction by medical methods.

Among the advantages of non-operative treatment there is first the danger of rupture of the bowel with consequent peritonitis. This perhaps is slight, but should be considered. In the next place one is not always sure that reduction has actually been accomplished. Third, there is a frequent recurrence of intussusception and opiates which tend to mask the symptoms, offer the only preventative.

Surgical treatment offers some distinct advantages; the first, being that one is sure either of accomplishing reduction, or if necessary more radical measures may be undertaken; second, a recurrence can more certainly be prevented by stitching the reduced gut to the peritoneum or shortening the mesentery; third, before relieving an intussusception in those cases of marked toxicity, one should aspiate the distended gut above, because as soon as this poisonous material strikes the normal intestine below it is absorbed much more rapidly and floods the system with toxine. I do not believe that this procedure is necessary, exception in those cases of more than thirty-six hours duration, because the material as a rule is not very toxic in the early cases.

I would then advise operative treatment in every case of intussusception as soon as the diagnosis has been made. Do not wait for a sausage shaped tumor to be present, to make diagnosis. My object in presenting this paper has been to urge upon the medical profession the necessity of early diagnosis and treatment, if we wish to prevent the exteremely high mortality, certain to occur in all neglected cases.

DISCUSSION

Dr. Geo. V. I. Brown (Milwaukee, Wis): Last year I had the pleasure of addressing this body on a subject that I thought I knew something about. It is very clear to me that I could not undertake this time to discuss a subject that I know very little about. I wish to explain, however, that when the notice reached me that I was to discuss this paper I was out of the city and did not return until it was too late to prepare anything.

I believe, however, that we can turn this unfortunate circumstance into a fortunate one if you can induce Dr. Hugh Cabot of Boston to lead this discussion. Dr. Cabot has not promised me that he would do so, but perhaps he will anyway.

Dr. Hugh Cabot: I want to congratulate Dr. Krause for having gotten to the meat of this question, and I think the best I can do is to add the weight of my testimony to some things he has said.

I will disagree with him violently, if necessary, in one regard. He said that these cases should be operated upon as soon as the diagnosis is made. Gentlemen, they should be operated upon before the diagnosis is made in many cases. (Laughter and applause.)

It recalls to my mind the early days of the now popular disease of appendicitis when a former teacher of mine heard a very distinguished surgeon say that the cases should be operated upon as soon as the diagnosis is made. He immediately jumped up and said, "You'll kill half of them if you wait until then!" It is perfectly true.

Not at all do I wish to inveigle you to not make a diagnosis. The difference between modern and ancient medicine is that it has become less of an art and more of a science. We do, in fact, make a diagnosis largely because we are given sufficiently accurate methods of doing it, and there is a held here, I think, for the application of different methods.

My experience is not as large in this as is that of many others. In the last few years I have seen no children, having been absent from this country on the business of the war, but it is clear to me that there are many cases in which I can not feel there is anything abnormal in all this. A little ether will do none of the conditions with which this may be confused, harm. It will enable you to make a diagnosis early in many cases. Relaxation will enable you to feel the tumor and if you are in sufficient doubt to make you hesitate to go ahead, then give a general anesthetic to reinforce your courage. The difference

between operating upon these cases early and operating upon them late is the difference between light and darkness. At the stage when they can be reduced, as Dr. Krause has described, by manipulation, the prognosis is excellent. At any other stage it is bad. It is not essentially different from the condition of acute intestinal obstruction from any cause. You all know that early acute intestinal obstruction does well, that late it does thoroughly bad and that later it does worse.

If all these cases could be dealt with surgically within a few hours after they occur, the mortality would be insignificant. If all of them were dealt with from twenty-four to thirty-six hours after they occurred, the mortality would be high. The whole premium is upon diagnosis in the opinion of most people. It is upon recognition of the fact that every baby suffering with pain, with the regular symptoms, and a little blood, either has or has not intussusception. If he has it, you have to do something with him. If he has not, well and good, but the burden of proof lies upon those will show that he has not some condition requiring surgical intervention. That is the point. We tend too much to think that the burden of proof lies upon those who will show that we should operate. The burden of proof lies with those who will show that we should not operate. Operate and save; failure to operate will kill; it is a clear one.

We have only to think straight in a comparatively narrow field and if in doubt help ourselves with a general anesthetic.

I think treatment other than operation has lost ground so rapidly that it need not be seriously considered. After all, it belongs to the time when we were afraid of the abdomen and regarded opening the abdomen as a serious business.

There are a few tissues in the body which will stand more surgery than has taken place. The attempted reduction by enemata delays satisfactory treatment and to delay satisfactory treatment under these conditions is to assume a grave responsibility. As has been said, you are by no means certain what has happened. You are certain in the majority of cases that time has been spent which might well have been spent by the patient in getting well rather than by the surgeon in trying to make up his mind whether the patient is going to get well or not. That time spent in delay is time which does not belong to the surgeon, but which belongs to the little patient. That is his time; he is entitled to it. We are not entitled to it. The attitude of mind that waits and sees how it will be this afternoon is the attitude of protection to surgery but not to the patient. The patient is entitled to that time. We should be required to say when first these patients are seen, whether or not they have intussusception and we should spend as little time as possible in coming to the opinion.

If really in doubt after every method of diagnosis has been tried, still the benefit of the doubt will remain in operation.

I thank you.

THE CHAIRMAN: We will ask Dr. Krause to close the discussion.

DR. KRAUSE: I have nothing further to say except that I appreciate very highly Dr. Cabot's discussion.

TYPHOID AND PARATYPHOID IN VACCINATED TROOPS.

A REPORT OF TWENTY-FIVE CASES IN ARMY OF OCCUPATION.

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Formerly Captain M. C., U. S. Army
CHICAGO.

The following is a brief summary of a series of twenty-five cases of fever which came under my care while I was attached to Evacuation Hospital No. 2 at Coblenz, Germany, in the Army of Occupation. This series was reported at the first meeting of the Third Army Medical Society in February, 1919. All the patients were admitted to the hospital between December 18, 1918, and February 10, 1919, and were all enlisted men of the Army of Occupation.

As all the patients had received at least one course of inoculation against typhoid and paratyphoid during their careers in the army, the diagnosis was not always easy, as it is known that such inoculation tends to obscure the findings of the typhoid group of fevers should infection subsequently occur. In making the diagnosis in each case we followed the instructions given to us by Lt. Col. Homer F. Swift, then consulting physician of the Third Army. In accordance with these the typhoid group was subdivided into the following:

1. Typhoid Fever (Bacteriological), where B. typhosus was isolated either in the blood or stool.
2. Typhoid Fever (Necrological), where the diagnosis was made or confirmed at autopsy.
3. Typhoid Fever (Clinical), including all cases in which the symptoms and signs pointed to the presence of the disease, yet in which the germ was not isolated.
4. Observation Typhoid Fever, this term being used to include suspect cases in which no germs were found nor were the symptoms characteristic enough to place the cases in Group 3.
5. Paratyphoid Fever, A or B, in which the paratyphoid bacilli were isolated either in the blood or stool.

Owing to the fact that our hospital was very busy during those three months, complete laboratory work could not be carried out on each pa-

TABLE OF CASES

Case	Last Inoculation	Spleen Palpated	Rose Spots	Diarrhea	W.B.C.	Anorexia	Fever	Abdominal Tenderness	Cough	Delirium	Complications	Outcome	Diagnosis
1	Feb. 1918	Yes	No	Yes	5,800	Yes	High	Yes	No	No	None	Recovery	Typhoid (Clinical)
2	May, 1918	Yes	No	Yes	10,800	Yes	High, steady	No	Yes	No	Pneumonia-empyema	Good	Typhoid (Clinical)
3	Oct. 1917	Yes	No	Yes	7,000	Yes	High, steady	Yes	Yes	No	None	Recovery	Typhoid (Clinical)
4	Jan. 1918	Yes	Yes	Yes	6,000	Yes	High, steady	Yes	Yes	No	None	Recovery	Typhoid (Clinical)
5	May, 1918	Yes	Yes	No	6,000	Yes	High, steady	Yes	Yes	Yes	None	Recovery	Typhoid (Clinical)
6	Aug. 1917	No	No	Yes	6,000	No	Irregular	No	No	No	None	Recovery	Typhoid (Clinical)
7	Aug. 1917	Yes	Yes	Yes	7,200	Yes	High, steady	Yes	Yes	Yes	Hemorrhage-pneumonia	Death	Typhoid (Necrological)
8	June 1918	Yes	Yes	Yes	5,800	Yes	High, steady	Yes	Yes	Yes	None	Recovery	Typhoid (Clinical)
9	June 1917	Yes	Yes	Yes	4,550	Yes	High, fall by crisis	Yes	Yes	No	None	Recovery	Typhoid (Clinical)
10	Sept. 1917	Yes	Yes	Yes	8,200	Yes	High	Yes	No	No	None	Recovery	Paratyphoid B (stool)
11	Jan. 1918	Yes	Yes	Yes	7,200	Yes	High, steady	No	No	No	None	Recovery	Typhoid (Clinical)
12	May, 1918	Yes	Yes	Yes	8,100	Yes	High, fall by crisis	Yes	Yes	No	None	Recovery	Paratyphoid A (blood)
13	July, 1918	No	Yes	Yes	6,400	Yes	High, steady	Yes	Yes	Yes	None	Recovery	Typhoid (Bact. stool)
14	May, 1918	Yes	Yes	Yes	8,000	Yes	High, fall by crisis	Yes	Yes	No	None	Recovery	Paratyphoid B (stool)
15	Oct. 1917	No	No	Yes	5,000	Yes	High	Yes	Yes	No	None	Recovery	Typhoid (Clinical)
16	May, 1918	Yes	No	No	5,900	Yes	Low	No	Yes	No	None	Recovery	Typhoid (Bact. stool)
17	Jan. 1918	Yes	No	Yes	7,000	Yes	High	No	No	No	None	Recovery	Typhoid (Bact. stool)
18	July, 1918	Yes	No	Yes	9,800	Yes	High, fall by crisis	Yes	No	No	None	Recovery	Observation Typhoid
19	April, 1917	Yes	Yes	Yes	6,000	Yes	High	Yes	Yes	No	Pneumonia-empyema	Fair	Typhoid (Bact. blood)
20	May, 1918	Yes	Yes	Yes	5,100	Yes	High, steady	Yes	Yes	Yes	None	Recovery	Typhoid (Clinical)
21	Aug. 1917	Yes	Yes	Yes	7,250	Yes	High, steady	No	No	No	None	Recovery	Typhoid (Clinical)
22	Nov., 1917	No	No	No	4,200	Yes	High, fall by crisis	No	Yes	Yes	None	Recovery	Typhoid (Clinical)
23	Sept., 1917	Yes	No	Yes	7,400	Yes	High	No	Yes	No	None	Recovery	Typhoid (Clinical)
24	Jan., 1918	Yes	No	Yes	6,600	Yes	Low, irregular	Yes	No	Yes	Hemorrh.-suppur.parotitis	Fair	Typhoid (Clinical)
25	Nov., 1917	Yes	No	No	7,000	Yes	High, steady	No	No	No	None	Recovery	Paratyphoid B (stool)
TOTALS	1 yr. or more 15	Yes ..21	Yes...13	Yes...21	6,732 Avge.	Yes ..24	.....	Yes ..16	Yes...16	Yes.. 7	Pneum.-empyema.....2 Pneumonia.....1 Hemorrhage.....2	Death...1 Recov..22 Fair.....2	Typhoid (Bact.)..... 4 Stool.....3 Blood.....1
	Less than 1 y....10	No....4	No....12	No....4	.....	No....1	.....	No....9	No....9	No..18	Sup.Parotitis.....1	.....	Typhoid (Necrolog.)..... 1 Typhoid (Clinical).....15 Observation Typhoid.... 1 Paratyphoid A ..... 1 (Blood) Paratyphoid B..... 3 (Stool)

All cases had headaches and pulse rates slow in comparison with fever.

tient; examinations for the germs in urine were not done. But every patient had a blood culture made within 24-48 hours after admission and many were repeated later; stools were repeatedly examined; and at least one leucocyte count was made in each case. To ask more of the laboratory would have been impossible, as the influenza epidemic then raging was taxing it to the utmost.

Most of the cases were also seen by Col. Swift, to whom I am greatly indebted for kind suggestions. The laboratory work was excellently well done by Capt. Robinson and Lt. Avery.

The accompanying table shows the chief symptoms and signs in each case and gives the diagnosis and result.

COMMENTS.—The fever in most of the cases was not as typical as we see in civilian practice as in some cases it subsided quickly; especially was this noticeable in two of the paratyphoids. The pulse was usually slow in comparison with the fever. Most of the cases were admitted after they had been ill for at least a week—some longer than that. This fact was undoubtedly a strong reason why more positive cultures were not recovered.

Many of the patients had taken part in those strenuous marches into Germany, which were undertaken just after the armistice. This was undoubtedly a weakening factor.

These cases, though few in number, point conclusively to the fact that antityphoid inoculation, as is noted in the *Journal A. M. A.*, page 1298, May 3, 1919, is only a partial protection. Fifteen of the twenty-five had been inoculated more than a year previously, ten within the last year; yet they were victims of the typhoid diseases. Obviously, we cannot afford to lessen our sanitary precautions, but must be even more careful than previously. And it is but natural to believe that re-inoculation should be done at least once a year.

The very low mortality (4 per cent.) is undoubtedly to be attributed to the previous inoculation. This process seems also to greatly lessen the severity of the disease.

The complications were interesting. The two patients who developed pneumonia and then empyema were both doing well when I left Germany in March. The one man who had both intestinal hemorrhages and suppurative parotitis made a good recovery. The only death in the series occurred in one of the two hemorrhage cases.

In none of the cases could I obtain any history of previous typhoid or of any typhoid or paratyphoid among the soldiers or civilians in the vicinity.

Treatment was similar to that carried out in civilian hospitals, being chiefly dietetic and care of complications.

SUMMARY.

The above is a report of twenty-five cases of typhoid and paratyphoid fever occurring in the Army of Occupation, with one death.

The need for repeated inoculation against typhoid and the necessity for ever-watchful care in sanitation are emphasized.

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TYPHOID FEVER AT MOLINE*

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Moline has quite recently had far more typhoid and paratyphoid than usually falls to the lot of the average city of its size. The situation has been a rather peculiar one, still it exemplifies what can well take place in any community unless every precaution is taken, and shows the necessity for eternal vigilance in safeguarding public health. Moline has had four distinct outbreaks in the past two years, representing three distinct sources of infection. Time will not permit as detailed a discussion as will be necessary to bring out all the interesting points, but it is hoped that the following paper will show some of the phases of the typhoid situation which will be of interest and value to those present.

During the fall of 1917 the State Department of Public Health learned that an unwarranted amount of typhoid existed at Moline. This state of affairs continued and as a result the writer was detailed to investigate the situation and determine if possible the source or sources of infection. This investigation covering the period from September 1, 1917, to April 1, 1918, showed conclusively the city water to be the source of infection.

Recommendations having been made looking toward the safeguarding of the water supply, little more thought was given to the Moline situation. However, in July, 1918, the department again received reports indicating an explo-

*Read at the 69th Annual Meeting of the Illinois State Medical Society, at Peoria, May 21, 1919.

sive outbreak of typhoid, and a second investigation was made. This investigation, like the former, showed the city water responsible.

Following closely the main outbreak in July, a small local outbreak occurred which was traced to water from a well, doubtless infected through near-by sewers.

But this was not all. Late in November a large number of people in one section of the town became ill. This was during the flu outbreak and was at first thought to be flu. However it was soon learned that the outbreak was one of typhoid, which was traced to milk.

Description of city. Moline, a manufacturing city of somewhat over 30,000 population, is situated on Mississippi river in the north central part of Rock Island county. Moline, Rock Island and East Moline comprise one community, Rock Island adjoining Moline on the west and East Moline adjoining Moline on the east. Rock Island has a population about the same as Moline. The 1910 census gives East Moline as having a population of 2,665, but the city has had a very rapid growth and probably has in the neighborhood of 8,000 people at the present time.

Typhoid record of Moline. The following tabulation gives the typhoid figures for Moline for a number of years back. These figures have been computed with the assumption that the growth has been uniform between census years and since the 1910 census was taken. It is interesting to note the decrease of typhoid following the completion of the filter plant in 1902. Before this time raw river water had been pumped into the city mains.

Year	Population	Deaths	Death Rate per 100,000
1899	16,723	24	144
1900	17,248	26	151
1901	17,941	18	100
1902	18,634	9	48
1903	19,327	6	31
1904	20,020	10	50
1905	20,713	9	43
1906	21,406	5	23
1907	22,099	5	23
1908	22,792	5	22
1909	23,485	7	30
1910	24,177	7	29
1911	25,009	15	60
1912	25,841	15	58
1913	26,673	14	52
1914	27,505	13	47
1915	28,337	9	32
1916	29,169	9	31
1917	30,000	10	33
Jan. 1, 1918 to Sept. 1, 1918	30,000	18	80

Very few Widals were made on the cases investigated during the winter of 1917-18 and it is not known if typhoid or paratyphoid predominated. During the summer investigation, however, a number of Widals were made which indicated an outbreak mainly of paratyphoid B. From these later findings and from a general study of the matter, it appears quite probable that the outbreak during the preceding winter was also predominantly one of paratyphoid. Inasmuch as paratyphoid is quite similar to typhoid (although as a general rule not so severe), the outbreaks will be referred to simply as typhoid.

Geographical distribution of cases. As might be expected in water-borne epidemics, the cases were found in every part of town, no one portion suffering perceptibly more than any other. The general distribution of cases throughout Moline, as well as the fact that Rock Island and East Moline had a few cases and the majority of these gave histories of having received infection in Moline, pointed quite strongly from the beginning toward the water supply as a source of infection. However, this evidence was not depended upon for solving the source of infections, conclusions being drawn only after eliminating all other possible sources. The last outbreak was confined to one milk route.

Distribution according to age and sex in water outbreaks:

Sex	0-9	10-19	20-29	30-39	40-49	50-59	60 above	Total
Male	29	35	51	40	16	8	2	181
Female	16	36	38	23	8	2	3	126
Total	45	71	89	63	24	10	5	307
Total per cent.	14.7	23.1	29.	20.5	7.8	3.3	1.6	100

Distribution according to age and sex in milk outbreak:

Sex	0-9	10-19	20-29	30-39	40-49	50-59	Total
Male	12	19	5	2	1	1	40
Female	5	10	7	9	1	1	33
Total	17	29	12	11	2	2	73
Total per cent.	23.3	39.7	16.5	15.1	2.7	2.7	100

The figures for the water outbreaks especially indicate a preponderance of male cases. This is well accounted for by the fact that owing to war conditions local factories offered attractive wages and a large number of men came to Moline for employment. The majority of these employees from outside the city were young men without families. Also most of the employees from Rock Island and East Moline were males. It is of interest to note that during the winter investigation it was found that no less than 19 males among the typhoid patients gave histories of having no family relations in the city, while only one or two female patients were similarly situated.

In the outbreak due to an infected milk supply the male cases predominate, but not to such a

marked degree as in the water outbreak. This is largely due to the fact that the majority of cases in the milk outbreak were 19 years of age or less, a class which probably was not materially affected by transient labor conditions.

After establishing conclusively that the water supply became infected and had caused all, or practically all, of the typhoid occurring during 1917 and up until August, 1918, it remained to be learned where this infection entered. From a study of local conditions it was apparent that the infection might have entered from two sources: from the factory district, where two water systems were used, or from the city waterworks plant.

Dual water systems at factories. The main factory district at Moline lies along the Mississippi, which forms the north boundary of the city. In order to receive minimum insurance rates from the underwriters, it has been necessary that the factory owners provide two sources of supply for fire purposes. To meet this demand what is known as the manufacturers' main has been laid between the factories and the river. This main is connected with the city supply along Third avenue at two points, and also by a large number of cross connections. Check valves opening toward the factory were installed on all pipes connecting the two sources of supply.

A dual water system, such as existed at Moline, constitutes a dangerous condition. This fact was recognized when the typhoid investigations were made. However, this investigation, though indicating a dangerous condition, showed there was no reason to suspect that the infections had entered the city mains from this source.

City water supply. Filtered Mississippi river water constitutes the Moline city supply. Considerable sewage finds its way into the river at relatively short distances above the Moline waterworks. Some of the towns discharging sewage above Moline had more or less typhoid. For instance, Clinton, Iowa, about 35 miles upstream, had a number of cases during the fall of 1917 when Moline was also suffering from the disease. East Moline and Watertown hospital, both of which had a number of cases of typhoid, discharge sewage about 5½ miles above the waterworks. In addition, a sewer serving the east end of Moline discharges above the intakes. With this condition existing it is important that the water-purification plant be efficiently operated at all times. It is quite likely that the sewage from some of these points actually constituted the sources of infection which entered the city mains and caused the typhoid.

The raw river water is first pumped into two baffled settling basins where it is treated with alum. From the sedimentation tanks the water passes into five rapid sand filters having a total capacity of 5,000,000 gallons per day.

During the outbreak of typhoid in the fall of 1917 the thickness of the filtering medium had been reduced approximately 10 inches. A large portion of the underdrain system had become clogged, making it necessary that excessive rates of filtration be maintained in portions of the bed in order to supply the demands of the city. This resulted in a very poor effluent. Ordinarily no bad results would have followed, even though the filter efficiency were low as liquid chlorine was fed into the effluent. But the records show that the chlorinator refused to operate on a number of occasions and a poorly filtered water was pumped into the mains. This may have been responsible for a number of the infections.

But the main number of cases doubtless resulted from another factor in the plant, namely, what is known as a by-pass. Some years ago the Commissioner of Waterworks desired to make it possible to pass settled water into the clear well at times when the demands for water greatly exceeded the filtered capacity. This often occurred after the strainers began to clog. In order to carry out this idea, a gate valve was placed in such a manner that a portion of the settled water might be passed directly over the filter and into the clear well, the remainder passing through the filters.

The records indicated some of the dates on which the by-pass was open during the fall of 1917, but there is reason to believe that the water had been by-passed on other occasions and that the chlorine had been off during the same periods.

Following the outbreak in the fall and winter of 1917 and 1918 the city had all the filters overhauled, defective strainers replaced by new ones and Red Wing sand used instead of the river sand removed. Two Wallace & Tiernan chlorinators were also ordered.

With the filters overhauled and the city alive to the dangers of permitting a partially treated

water to enter the mains, it was thought that no further trouble would be had. However, as already stated, in July a sudden and serious outbreak of typhoid fever occurred. This outbreak, like the preceding one, comprised cases scattered throughout the city. The same method of investigation was here used with the result that all evidence pointed conclusively to the city water supply.

With the filters newly overhauled, it was evident that the sudden and extensive outbreak could not have occurred from filtered water, even had no chlorine been added to the effluent. There was reason to suspect from the beginning, therefore, that the by-pass had been used.

The chemist was questioned as to the possibility of the by-pass having been opened but not recorded. No instance was discovered and the chemist stated that the filters in their existing condition were capable of yielding sufficient water for all needs and the by-pass had not been used. However, in spite of these denials, the evidence appeared so conclusive that it was decided to simply remain at the plant on the theory that some one would eventually disclose some incident which would lead to a solution, and, as was expected, that necessary information was secured from one of the employees. It was learned that the chemist had opened the by-pass about 5 p. m. on June 21 and left it open until 2 p. m. on June 22. A study of the records show that the chlorine was on only part of the time the water was being by-passed. Information received later showed that the by-pass had also been opened during a part of June 19.

During this period also little or no chlorine had been added.

Measures were again taken to prevent any more infectious matter entering. However, more cases were reported in August than should have resulted from secondary infections. Therefore, another trip was made to study the cause of this small outbreak. It was soon found that the majority of these cases lived in a certain section of the city or had been working or visiting near by. A careful investigation indicated that a private well, known as the McGovern well, was responsible for a separate outbreak in which perhaps 25 cases were infected. This well is of the dug type and approximately 75 feet in depth. About 72 feet are in limestone. The top of the well was adequately protected. The exact channel through which this well became infected is not known, but there is every reason to believe that the sewage from an adjoining building, which had contained some typhoid cases, may have entered the well and caused the trouble or that sewage from sewers in the adjoining streets, which are laid in limestone formation, may have traveled in a crevice in the rocks of the well.

The source of infection in the last outbreak, which was due to milk, was readily found, as practically all the cases were among customers of one milk dealer. The following interesting history was learned: A Mr. Hoste, working at one of the factories at East Moline, was not well in the fall. He had been in a run-down condition and feeling poorly. A physician was consulted on August 14 who told the patient that he appeared tubercular and recommended that he secure employment in the country rather than to stay in the shops. Mr. Hoste was never sufficiently ill to go to bed and no Widals were made at this time.

In accordance with the doctor's recommendations, Mr. Hoste secured employment with his brother-in-law, Mr. Dhooge, who, by the way, was delivering milk over the route in question. Here he helped with the milking of the cows.

During the latter part of November typhoid occurred along Mr. Dhooge's route. A visit was, therefore, made to the Dhooge farm. Mr. Hoste's recent illness was here learned of and blood samples were, therefore, secured for Widals. Typhoid reactions were found at two laboratories and there is no doubt, therefore, that this typhoid outbreak, including about 75 cases, was directly traceable to this mild case of walking typhoid, which Mr. Hoste doubtless had when he was still working in the factory.

GENERAL HEALTH ACTIVITIES AND THEIR EFFECT ON TUBERCULOSIS*

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Regardless of popular opinion to the contrary and the rather pessimistic attitude of even some health officers and physicians, the warfare against tuberculosis has resulted in an unusual measure of success. The reduction in tuberculosis mor-

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tality compares favorably with that of any communicable diseases, except those for which science has provided some specific preventive measure.

According to the statistics compiled by Frederick L. Hoffman (Transactions of the National Tuberculosis Association, 1913), the tuberculosis mortality in New York, Boston and Philadelphia approximated 450 per 100,000 of population a century ago. Since 1912, the tuberculosis mortality for the entire registration area of the United States has not exceeded 150 per 100,000 and is tending steadily downward.

Inasmuch as sera and vaccines have proven altogether worthless in the prevention of tuberculosis and no other specific preventive has been forthcoming, it is not reasonable to compare the reduction in tuberculosis mortality with the mortality from smallpox, typhoid fever and diphtheria, in which vaccine and antitoxin have proven effective, or with the deaths from yellow fever or malaria in the suppression of which the means are simple and direct. As a matter of fact, tuberculosis presents problems more complex and more difficult to meet than those of any other infectious or contagious disease. The prevention of tuberculosis involves the adjustment of practically all health and social conditions. To attempt to control the disease by the isolation and quarantine of all persons infected would result in the grotesque situation of incarceration of perhaps eighty per cent of the population, with hardly enough remaining at large to carry on the world's affairs.

In spite of these complex questions in the control of tuberculosis and the more or less misdirected efforts of the past, we find on comparison of recent statistics that the results in tuberculosis prevention have been strikingly good. Comparing the five-year period, 1901 to 1905, with the five-year period, 1911 to 1915, we find that the mortality from measles has decreased 5.5 per cent; of whooping cough 10.8 per cent; of pneumonia 16.9 per cent; of diarrhea of infants 21.7 per cent, while the death rate from tuberculosis during that period has dropped 22.2 per cent. Of all of those diseases for which science has not provided a specific preventive, scarlet fever alone makes a better showing than tuberculosis.

In the warfare against tuberculosis there has been enlisted the largest, the best organized and the most liberally financed extra-governmental health organization the nation has ever known, and the gratifying reduction in tuberculosis mortality is doubtless due, in a large measure, to the activities of national, state and local tuberculosis associations which have attacked the problem with a fair consideration for its very important social phases, and a reasonable recognition of its complex character. The governmental health agencies, as a rule, have made the mistake of dealing with tuberculosis with too much accent upon its infectiousness, attempting as a rule, to combat it upon the simple and direct lines which have proven effective in other communicable diseases.

The tuberculosis organizations have taken great pride in the fact that from 1891, when the first tuberculosis association was organized, until 1913, the tuberculosis mortality had been reduced from 23.8 to 16.6 per 10,000 of population, or a reduction of 30.25 per cent, and these organizations have been disposed to attribute this reduction to their own activities which, in a large measure, have been directed toward the elimination of tuberculous infection and the destruction of the tubercle bacillus.

A little closer scrutiny of statistics raises definite question as to this claim, for it is found that during the period, 1872 to 1891, or for twenty years before the creation of tuberculosis organizations, the mortality had decreased from 33.9 to 24.5 per 10,000 of population, or a decrease of 27.47 per cent. As a matter of fact, tuberculosis mortality had been steadily decreasing for a period of a hundred years, or as far back as statistical data are obtainable, including a period of sixty years in which the tubercle bacillus as the casual factor of the disease was entirely unknown.

This showing raises the question as to whether the conception of tuberculosis as a contagious disease by health authorities, and the battle waged against the bacillus by tuberculosis agencies, has actually been responsible for any great decrease in tuberculosis mortality, or whether, on the other hand, other factors have been playing the principal role in the attainment of these gratifying results.

It is now generally accepted that tuberculosis is almost invariably a result of childhood infection; that the vast majority of adults are infected and that the development of tuberculous diseases depends, not only upon the presence of tubercle

bacillus, but upon some condition which lowers the individual resistance. Hence, we find that while tuberculous infection, particularly of children, is a matter of importance, that other factors are also indispensable in the determination of tuberculosis mortality.

Accepting the theory of childhood infection and the doctrine that if we can control the child we can practically eliminate tuberculous disease, we conclude that pre-natal care, good obstetrics, post-natal care, the protection of the infant, the control of milk supply, medical school supervision, school sanitation and other factors essential to robust childhood, are indispensable in a warfare against tuberculosis. Inasmuch as some of the contagious diseases are notoriously forerunners of tuberculous disease, we must accept it that the prevention of measles, influenza, pneumonia and other acute infections is part of a successful tuberculosis campaign. Since the under-nourished, the under-clothed and the ill-housed are particularly susceptible to tuberculosis, we must include charities and relief, housing and all manner and all phases of social and community life in our campaign if we would attain satisfactory results, and our interest in housing must go much further than the question of the viability of the tubercle bacillus in the dark and unventilated room, while our interest in milk supply should be directed to encourage the production of good and safe milk as a means of general health promotion, rather than to the less important question of specific infection through tuberculous cattle.

A study of tuberculosis mortality for the past century, made with the modern conception of tuberculosis clearly in mind, leads us to the inevitable conclusion that tuberculosis mortalities have been reduced by general health and social activities and by means of better and saner living conditions far more than through the warfare on the tubercle bacillus or our defensive attitude in regard to specific tuberculous infection. The narrow program adopted by most public health agencies and by many tuberculosis associations of attempting to conquer tuberculosis by a battle on the germ, by isolation, quarantine, anti-spitting crusades and drastic restrictions placed on the individual consumptive, has never accomplished as much, and, in my opinion, can never accomplish as much as the broad program which has as its object the development of individual and community health with the idea of increasing the resistance and thereby placing the individual in a position where he can successfully combat the ever-present infecting organism.

So long as the vast majority of apparently healthful persons are subjects of tuberculous infection, and so long as we are unable to determine with any degree of accuracy which of these hosts of persons are possible spreaders of disease, the practical problem which confronts us is that of preparing to live with the tubercle bacillus, rather than of devising the means whereby the individual may escape from contact with that organism.

While questioning the narrow policy of anti-tuberculosis organizations in the past and recommending for the future an infinitely broader program, it cannot be questioned but that the extra-governmental tuberculosis organizations have been largely responsible not only for the reduction of tuberculosis mortality, but of general mortality, for the work they have actually done has been infinitely broader than the doctrines they have proclaimed. Throughout vast areas of the nation, the majority of community nurses, dispensaries, child welfare organizations and general health activities have been originated, developed and financed by extra-governmental tuberculosis organizations and the nation and the several states are more indebted to these organizations for standardization of health activities and for practical results than to any other volunteer agencies which have been engaged either directly or indirectly in public health work.

The showing of the statistics of the past indicates the need for a broader program which will co-ordinate all health and social agencies in the successful warfare against tuberculosis, and yet as I see it, this must be done without losing the individuality of either the tuberculosis work or of any other specialized activities, since it has been only through this specialization that governmental agencies and the people at large have come to appreciate the importance and magnitude of various phases of health work.

DISCUSSION

DR. F. F. MEIXNER (Peoria): Gentlemen, it is easy enough for us who know to get up and talk, but it is the hardest thing in the world to get the lay person interested in the subject of his own health. Nothing is so cheap in this country as a person's health. We figured that out in dollars and cents as the State De-

partment of Public Health has done in the epidemic of influenza. Of what good is the common sense that we talk if we can't impart that knowledge to the laymen?

All our public health activities are along the line of outlining a mode of living to promote the general health of the individual. If we do that we are accomplishing just what we must; we are increasing resistance, preventing tuberculous infection from becoming a tuberculous disease.

It would be rather interesting if we knew what would happen if the tubercle bacilli were marked out for a generation and then allowed to creep back. That experiment has partially been tried by taking tuberculosis to some savage tribe by our missionaries and by Eskimos coming to our civilized communities and becoming infected. They invariably died off as droves of sheep.

Perhaps then our mild state of tuberculosis is a provision of Nature which prevents us from getting such a mass of infection later that we would succumb to it.

Then the whole thing in prevention seems to be education. Get the people to examine their health, get general inspection of public school children. Let the factories be in such condition that there is less tendency to become infected. Let people take suitable vacations, proper food. Let them use pasteurized milk, as Dr. Robertson recommends. Let them drink fresh water and breathe fresh air. You know those three—good water, fresh air and sunshine—man should have them until the last breath he takes on earth.

That is what public health activity can make possible if it will carry out such a program. I don't think we need to worry about tuberculous infection becoming tuberculous disease.

Dr. Robertson: During the last few years I have had to do with the spending of $5,000,000 in the city of Chicago to attempt to gain, in some measure, control of tuberculosis in that city. Dr. Vincent, President of the Rockefeller Foundation, in a paper enumerated fifty-seven different societies in the United States to work along health lines and advocated that they be limited, that they be put together.

You have listened to Dr. Palmer this afternoon, stating that tuberculosis organizations of the United States, as I understood it, have been largely influential in reducing tuberculosis to about 22 per cent.

I want to take issue with that statement. I am going back to the doctor. I am going to give credit to the men of the medical profession and the research work that has been done by medical people. I am going to state in passing that the tuberculosis organizations have served as publicity agents, and have by that publicity helped to arouse the lay people of America.

I am going to take exception again to what Dr. Palmer has stated because I believe his statement is reactionary, when he says that the campaign against spitting, the prevention of the infection, should not be attempted. He has not said it just that way but that was the impression he left, I think, and I am going to state that, in my poor judgment, the rules and regulations as made by the State Department of Public Health are right and should be followed and the rules and regulations of the Department of Health contemplate getting after the open case. Quarantine them! Placard them!

If Koch was right that the Tubercle Bacillus is the cause of the disease, then why should we not try to minimize it? I think this disease should not be fought in any way different from the practice in scarlet fever. That is one disease in which there has been a greater progress made than in tuberculosis—the only one he has mentioned. Is he ready to prove that that was not accomplished by the health officers, by the use of pasteurized milk and quarantine, and might not that same pasteurization of milk have had something to do with the reduction of tuberculosis?

There is a well-known health law—Dr. Reilly wrote about it twenty years ago in the health department—that whenever you reduce any one disease in a community, typhoid, for instance, it makes a corresponding reduction in the other diseases.

It has been shown that of all the people that have had typhoid—we will say 100,000 people in America have had typhoid—those that have died within ten years thereafter, 38 per cent. died from tuberculosis. Now then, you reduce typhoid fever by 100,000 in America and you reduce one of those predisposing causes perhaps, but I think we should not put forth the idea that we should not keep up a constant fight against the open case.

We made a survey in the city of Chicago eight miles square—North Avenue on the north, Twenty-second Street on the south, State Street on the East, Ashland Avenue on the West. We examined 165,000 people in that survey. We found 14,282 cases that had not been reported to the Health Department and of that number no less than 1,000 were open cases.

All the restaurants and large hotels have open cases. You would not be surprised at the spread of scarlet fever under similar conditions. You would not say an epidemic of smallpox could not be suppressed because numerous open or contagious cases were present.

I believe a time will come when you can stop infection. I want to tell you of one plan we are using in Chicago to educate and get the coöperation of the physicians. When we learn of an unreported case of tuberculosis through the filing of a death certificate, we at once communicate with the attending doctor. The doctor who signs the death certificate is written to and asked why the case was not reported as the state rules and regulations require. He is asked to come before a hearing board. At that hearing board is an attorney. At that hearing board is some one of our doctors who had examined this case. At this hearing board are two or three health officers. Sometimes the doctor called in is very angry. The idea that he should be brought before a hearing board because he had failed to report a case of tuberculosis!

He usually goes away in a good humor. He agrees to coöperate. That hearing board is working every week, two sessions a week, bringing before it fifteen or twenty doctors, educating them to the prevention of tuberculosis. I think the greatest need for combating tuberculosis at the present time is that the ordinary physician may be so well trained that he is able to make his diagnosis earlier than he does now, and that too, without waiting for the laboratory findings because then it is usually too late. We want the incipient case and want it early.

In the city of Chicago we have been enforcing the state law that is laid down by the director of health of the state of Illinois and we believe we are getting good results and I think we should not stop this fight against coughing and spitting. I believe that people should be educated right along about the droplet infection and I believe we will finally win out in this disease. We should brand tuberculosis as a contagious disease.

We can talk about housing. We made a housing survey and when we got through we decided that there was not a thing in housing. There was not more tuberculosis in the poor houses than in the others; in fact, it came out the other way. Dr. Winslow of Yale has stated that this plan that I have outlined of going after tuberculosis the same as any other contagious disease is the best plan ever yet devised for the control of tuberculosis and that is the state plan and the state law. You can talk and you can educate and you can preach until doomsday, but people go right out and do the same thing over and over again. You can take a patient to the sanitarium from some of our districts in Chicago, keep him there three months, train him so he will never expectorate on the sidewalk, so that he will carry his tissue paper with him, so he will sleep outdoors at night, and then you can send him home and in six weeks you will find him going back to the same old way of living again.

You have talked to Illinois for years. You have talked until you got your county sanitariums; you have talked to get your money to work with; you have talked to get your law. Now that you have got your law, the time to act is with you. The time to take the open case and keep it away from our children has come. I feel very strongly about this.

I am going to put this instance to Dr. Palmer personally. My father was an officer in the northern army. He had tuberculosis. He coughed and spit all the time he was in the army. He came home and had four children. I was the youngest. He died when I was ten months old. We then moved out west, where all the fresh air and sunshine in the world were to be had, out on the prairies, not near any cities. That did not prevent my eldest sister from dying from tuberculosis, my other sister dying from the same disease at 28 and still another sister dying from tuberculosis at 30. It did not prevent me from having tuberculosis in 1893. I was told to get out of Chicago and not to study medicine because of the condition of my lungs.

There was an instance where the eldest sister was with my father six years, one four, another two, and I for ten months, and one who was with him the longest died first. She had more opportunities for receiving continuous infection.

I do not believe in my lifetime we will ever be able to clear up and stop a universal infection.

I wish we could hear from Dr. Graves about this.

Dr. Adkins (Springfield): I think we will all agree on two points—the universality of tuberculous infection and the need of our laying greater emphasis possibly on questions of personal immunity and resistance. The public is of an open mind today on the tuberculosis question so that the time has come when we can appeal to their intelligence much more than we could before. I think the question arises in the minds of many of us whether the recent influenza epidemic that is in all our minds can throw any light on the matter of tuberculosis.

Every great pandemic like this ought to be the means of throwing better light on the questions of infection, of immunity and personal resistance.

In this connection we might be interested in the results already tabulated so far as it has gone from the Framingham demonstration in Massachusetts, where men have been on the job to make a more scientific examination of the people than any other community that we know of.

Following the influenza epidemic Dr. Armstrong reports five hundred examinations made, monthly examinations, I believe, and, contrary to all expectations, only one per cent chronic tuberculosis was found, and that corresponds very nearly to the actual percentage found in the entire community.

In the Framingham experiment again they seemed to show that there was only four per cent. of their tuberculous patients infected as against 16 per cent of the general population and these were not men sick abed but respiratory cases open to the exposure.

Dr. A. Graves: Just a word relative to what the last speaker mentioned—the immunity that tuberculosis seemed to confer upon individuals from influenza. We noticed particularly in our work that our cases of tuberculosis were not so prone to the development of influenza as were individuals who were not apparently, at least, infected with tuberculosis. Furthermore, we have been very much surprised, handling as we do at the present time about 28,000 cases of tuberculosis, that the attacks of influenza have not lightened up, or have not brought about an increase at the present time in the amount of acute infections; in other words, that the influenza has seemed to have very little effect on the cases that we can see in increasing the general tuberculosis condition.

We have met many cases of influenza that show no increase at all in the number of tuberculous cases which we at the present time treat. This, I think, is in line with what the last speaker said and is in line

with the demonstration that has been going on in the East.

I concur very heartily with what Dr. Robertson has said in regard to the enforcement of the state law. We are endeavoring to do that. I think we have good laws and I think these laws should be absolutely carried out. It seems to me there are two or three facts that are particularly important. First, the young child should be protected and should be protected absolutely from the open case. Now we can only do this by taking the open case away from the young child. Sometimes the young child can be taken away from the parents. It is better to take the parent away from the child and have the child taken care of by other service, public service, and remove the open case to the hospital and in this way prevent the infection from occurring.

It seems to me that we should be particularly careful with our school children. Every school child should be carefully examined when they enter school and if they show any of the symptoms of the disease they should be excluded from the school.

This is not only true of school children, but it is absolutely true of all our school teachers. We have in Chicago a large army of school teachers who have tuberculosis—open cases. We have in the last year taken six cases, open cases, of tubeculosis from the school teachers in the city of Chicago.

Another important point is that these teachers, when they enter the schools, every year, should show a clean bill of health. They should be examined carefully and unless they are free from respiratory disease they should not be allowed in the school. If the teachers and the children are examined and not allowed in the school, this will help us to control a situation which we know is of the very greatest importance. If this can be done and the open case can be taken care of, can be taken away so that he is not likely to infect the young children the soil which is ready to receive the tuberculous infection, we can in a very great measure, at least, facilitate what we are after—the control of tuberculosis.

Dr. Palmer (closing discussion): Mr. Chairman, the English language is a very delicate thing and I hope I have not conveyed the idea that I was attempting to lay stress on one angle of a very broad subject. I believe steadfastly that the avoidance of infection will never get us very far in the warfare against tuberculosis. What I was trying to convey was this: That the agencies in their warfare against tuberculosis have been on the wrong path. It has been public health agencies in their work with children, in houses, in bringing about better living conditions, that are responsible for the decided lowering of the tuberculosis mortality.

To say that the credit of this thing is due to the medical profession I grant, but I don't think the medical profession is not included in the tuberculosis organization. The tuberculosis organization included the foremost institutions in the United States.

Dr. Robertson refers to the remarks of Dr. Vincent on, I think, the fifty-seven different varieties of the Government agencies engaged in public health work, and he pointed out that they had a budget of $1,500,000. Now, the tuberculosis agencies alone have expended $2,500,000 or a million more than all the rest of them combined in their public health work.

In the discussion of a paper recently one of the men said, "It is recognized that when the American army is on the defensive it is licked." Our attitude against the tubercle bacilli is defensive and we will never get any place fighting the bug. We will have to coördinate all those agencies which promote good health before we are ever going to make a successful attack against tuberculosis.

In the fight against tuberculosis, if isolation and the fight on the bacillus is the only way out of the woods, why was it the tuberculosis mortality decreased rapidly and steadily before the tubercle bacilli was discovered?

TUBERCULOSIS INFECTION IN RELATION TO PUBLIC HEALTH.*

Walter B. Metcalf, M. D.
CHICAGO

Does it pay to advertise? Commercial interests evidently believe that it does, and a glance at any of our leading periodicals will convince the most skeptical on this point. Commercial interests keep their particular products before the people, by using every conceivable method, to arouse a buying and using interest.

We, too, must advertise if we ever expect to have our ideas and knowledge about the "health problems" that concern human life and human happiness accepted. Therefore, I make no apology for appearing again before this section of the Illinois State Medical Society with my problem, which also is your problem, because we are the ones who are responsible for getting health problems before the people. The problem to which I refer is the tuberculosis problem and it is today the greatest health problem that concerns the human race. I wish briefly to discuss some important phases of tuberculosis infection in relation to public health.

We are familiar with the story of the great ravages of the Asiatic plague, of smallpox, of yellow fever, of diphtheria, of typhoid fever—all of these infectious diseases. They have all been either stamped out or are under control but tuberculosis, a preventable disease, is as great a menace

*Read at the 69th Annual Meeting of the Illinois State Medical Society, at Peoria, May 21, 1919.

to civilization today as it was before we knew how to prevent it.

As evidence of the greatness of the problem we need only to consider the number of humans who are victims of tuberculosis infection.

Many investigators have studied the frequency or extent of infection and are agreed that infection goes hand in hand with civilization: that the closer the contact of peoples and the greater their development the more universal is the infection. Autopsies made in civilized countries indicate that well over 90 per cent of humans had tuberculosis infection.

The new-born infant is free from tuberculosis, indicating that infection, if it occurs, takes place after birth. Of the more recent autopsy reports, Harbitz found 20 per cent infected at 1 year and 80 per cent at 18 years of age. The anatomical picture was predominantly that of tuberculosis of the lymphatic glands, especially those of the thorax. So much for the autopsy findings.

How about tuberculosis infection among the living? This can be determined by application of the tuberculin test. This test is as definite and accurate as the macroscopic and microscopic findings after death. The tuberculin test will reveal the presence of infection even when the lesion produced by the tubercule bacilli is microscopic.

Hamburger's report covering an exhaustive study of infection among the living indicates that 94 per cent were infected at 14 years. This same high ratio of infection is found in the reports of other investigators. Not all of these infected cases develop tuberculous disease, but 50 to 60 per cent of them do, or will before they die, and 20 to 25 per cent of these infected ones will die of tuberculosis.

At this point I wish to make a distinction between tuberculous infection and tuberculous disease, and that I may help you to understand my distinction, I will define the different conditions as I see them. By tuberculous infection I mean the state of being infected. Tuberculous infection covers all the cases in which the virus of tuberculosis has entered the body; but tuberculous infection is not always followed by tuberculous disease.

By tuberculous disease I mean an alteration in the state of the body or its organs, interrupting or disturbing the performance of the vital functions and causing symptoms of some sort. It is the reaction of the tissues to the infection that causes the disease. It is also known as clinical tuberculosis, or manifest tuberculosis. Tuberculous disease is always preceded by tuberculous infection.

As has always been shown, very few escape infection with the tubercle bacilli. The tuberculous lesions found at autopsies did not all indicate activity, nor was tuberculosis the cause of death in all of the cases; neither do all of those who are infected with the tubercle bacilli develop tuberculous disease, but a large per cent of them do, and it is because of this fact that our problem is established. As we have presented the problem it appears that a great majority of human beings are infected by the tubercle bacilli, but do not all develop the disease, and not all of those that develop the disease die of tuberculosis. Herein lies our hope.

We must advertise these facts—give them publicity. A great amount of work has been done along this line, and is now being done, but those who have studied this problem closely realize that the progress made is very disappointing. We are not getting the results that we should. What do commercial interests do if the publicity, advertising or sales efforts do not bring results? They either change their methods or increase the amount of publicity or advertisement.

There is abundant evidence that we are not making great progress with our problem and I ask the question: *What are we to do?* In this question there is food for thought. I am sure that we must both increase our efforts and improve our methods.

Within a period of two years we have seen a wonderful organization formed and developed by the United States Government. Great masses of men have been intensively trained and humanely treated. Never was an army so well selected. The most important part of the great task was performed by and under the direction of the medical profession. We did not realize, we did not know what big things we could do until the demand was made of us. We have also seen a great organization of physicians formed. They, too, have been intensively trained. We have seen great camps built and equipped upon spacious grounds.

The buildings are well lighted, well ventilated and supplied with heat and will accommodate many thousand persons. These buildings will

easily last for years if occupied. We have seen large hospitals built and modernly equipped. These hospitals have a capacity of many thousand patients.

It is a fundamental principle that it is the duty of the Government to safeguard its people against wanton destruction from within, as well as from without. We fought to protect our country from without by the Hun. We must fight to protect this foe that is within. We entered the World War with the avowed intention to make it —the world—safe for democracy. Anyone who has tried to estimate the war's cost in human life and human suffering and money will need no exhorter to make him pray Almighty God that a league of nations, or some covenant be made and kept that will forever banish war from the world. This I believe can and will be done.

Those who have studied the tuberculosis problem and have made estimates of its cost—in human life and human suffering and money—will offer as fervent a prayer that some organized effort may be started that will deal as effectively with this foe that is within our midst.

The great cost in human life, human suffering and money, the almost universal distribution of its effects, makes the problem of this infection an economic and sociologic one and calls for international organization and effort, if we ever expect to make the world safe for humanity, and I propose this as our slogan: "Make the World Safe for Humanity."

We have just recently helped wage a world war at a cost to us of a hundred thousand lives and billions of dollars for the avowed purposes of making the world safe for democracy, and we agree that it was wise and glory in the part we played. I am sure that no man, familiar with the tuberculosis problem, will question the statement that if one-tenth the number of lives and one-tenth the amount of money were spent in a war on the bacillus tuberculosis—the Hun of the bacteria—which is as great a menace to humanity as the Hun was to democracy, the activities of the bacillus tuberculosis will be as effectively curbed.

We are told that physical preparedness for war is the best kind of preparedness for peace, for industrial progress, for a forward and upward movement of civilization. If this be true, and I am sure that it is, then the first thing we must consider is the physical care of the humans that make up this civilization.

This is our responsibility, and it will require action and co-operation. Reading papers before medical societies or discussing the same is not enough, and I plead for your co-operation in some action to the end that a movement be started for this purpose that will be international in its scope. It is necessary that a drive be made against tuberculosis, and *now is the time.*

Why should we tear down and destroy the great camps and hospitals? Why let all the doctors, nurses and sanitarians, who have been especially trained, go back into civil life? Why not the United States Public Health Service be given the power to muster them into active service, and our Government be given the power, if need be, to make a Health Bond Issue to carry on the work? Do you think that it would take as much effort to place such a loan as it took to float the Victory Liberty Bonds? I think not. If we gave the object to be attained and the results that would follow the same amount of publicity suffering humanity would over-subscribe to these Health Bonds.

Give the United States Public Health Service authority to spend the money, employ these physicians, nurses and sanitarians. Let them outline a campaign covering 3 to 5 years, and make a national survey. Use these camps and hospitals for the care of the sick and success will crown our present insufficient efforts.

HYPERESTHETIC ETHMOIDITIS*

HARRY L. POLLOCK, M. D.,
CHICAGO

The above term I have suggested to include a group of symptoms, described by various authors under the title of Rhinitis Nervosa, Rose Fever, Spring Catarrh, Vasomotor Rhinitis, Coryza Vasomotoria Periodica and Nasal Hydrorrhea.

The symptoms of all the above named conditions are constant and the clinical intra-nasal picture, as well as some associated conditions, are always the same; the prognosis and treatment are practically identical, but the existing etiological factors may vary and be due to and influenced by a wide number of conditions.

I have found that a great majority of our cases are in young female adults, mostly in unmarried women, although it does occur in married women and occasionally in the male.

*Read at the 69th Annual Meeting of the Illinois State Medical Society at Peoria, May 21, 1919.

The symptoms of this disease I described in a previous essay[1]. It simulates hay fever or hyperesthetic rhinitis to a greater degree, except in its time of appearance, its duration and severity, and is in no way associated with the ripening of the various pollens, to whose inhalation hay fever has been ascribed. On the contrary, those of my patients who have had these symptoms for a number of years inform me that the attacks scarcely ever occur during August or September, but if they do, the severity of the attacks is lessened. As stated, the attacks come on at any time of the year; they are irregular in the time of their appearance, duration and severity. The paroxysms are often brought about by contact with, or inhalation of, a specific kind of perfume, a particular flower, the odor of various animals, a slight draft of air or the inhalation of ordinary dust following an automobile trip or train ride, or may come on apparently spontaneously.

These paroxysms begin usually just upon arising, with attacks of sneezing, varying in number from five to fifty times, followed immediately by a profuse watery discharge from the nose. At the same time there is a reddening of the mucous membrane of the eyes, accompanied by profuse lachrimation. The nose becomes blocked and breathing is naturally difficult. These symptoms may be of short duration, an hour or so, or they may continue for six or eight hours and suddenly abate only to reappear on succeeding days or when the patient is again brought into contact with the specific irritant. Some of these acute attacks may continue for a week or ten days, and some only a day.

If the nose is examined between these attacks, the appearance is usually normal except possibly a slight paleness of the mucous membrane. During the attack, however, the turbinates are swollen, soft, pale, edematous and have a boggy appearance. This is especially true of the inferior and to a lesser degree, of the middle turbinate. The mucous membrane of the septum is also pale. The eyes are red, the conjunctiva is injected and at times there is an accompanying itching.

The secretion is thin, watery and acrid. After a few days of the attack the upper lip becomes irritated and excoriated from the constant clearing and blowing of the nose and from the acrid reaction of the secretions. Even the entire tip of the nose may become red and swollen from the same cause.

The etiology, i. e., the underlying pathological condition of this disease, has not been determined.

The exciting factors are well known in a large number of cases, some of which have been previously mentioned. Other patients, however, cannot account for the sudden onset of the unpleasant symptoms; some stating that, so far as they knew, they were in perfect health the night previous, but upon awaking they realized by the intensive sneezing spells, which they experienced, that another attack was approaching. These were always followed by the complete syndrome above described.

In this connection I desire to cite a portion of Dr. G. Sluder's views on this condition, which he describes in his recent book under the chapter of "Sympathetic Syndrome of Nasal Ganglion Neurosis." He says that "it is not possible at present to explain the various nerve manifestations produced by an inflammation of the nasal ganglion." For a number of years he has thought that these were symptoms of the sympathetic which supplies the nasal ganglion. It is generally admitted that one function of the sympathetic nervous system, among others, is vasomotor and secretory. It would seem that it is a lesion of the sympathetic elements of the nasal ganglion that explains this vasomotor secretory phenomena. My reason for drawing your attention to this point is that, under the subject of treatment the ganglion with its direct treatment plays an important role.

The diagnosis of hyperesthetic ethmoiditis is comparatively simple when once the condition is in full force: an intensive violent sneezing attack, followed by a profuse hydrorrhea, a thin watery burning secretion, which may persist from several minutes to several hours, a blocking of the nose, profuse lachrimation and itching of the eyes. These violent symptoms may suddenly abate and the patient feels fairly free from all symptoms until the succeeding day, when they are repeated. It simulates very closely the attacks of hay fever, except that, in the latter, usually after a sudden onset there is no sudden abatement of the symptoms. There are repeated attacks at any time of the year, especially if brought in contact with the special exciting

cause, such as perfume, dust, powder, etc. The diagnosis is further verified by inspection of the nose. The extreme paleness and succulent condition of the turbinates and of all the mucous membrane of the nose is pathogonomic of this symptom complex. This syndrome must be differentiated from hyperplastic ethmoiditis, in which condition we frequently get symptoms of sneezing and hydrorrhea. In this later condition we have distinct pathology of the mucous membrane and the turbines which has been described in a paper by my associate, Dr. Joseph C. Beck. There is usually a polypoid degeneration of the turbinates or true polyps; also associated headaches, asthma, etc., but never the succulent pale turbinates, which are found in hyperesthetic ethmoiditis. We must also differentiate the symptoms from true hay-fever, but the latter condition is so characteristic in its time of appearance and presents such distinctive symptomotology, that it is needless for me to emphasize the differentiation of the two conditions. In cases of meningocele, there is often an escape of cerebro-spinal fluid, which of course, must be differentiated from the hydrorrhea accompanying hyperesthetic ethmoiditis; also from hydrorrhea and turgescence described by Fein in connection with sexual excesses and irritation.

The prognosis without intervention is bad, as the attacks invariably return, and, while they do not seriously undermine the general health of the individual, they cause a great deal of annoyance and discomfort. With the proper treatment, the prognosis is good and nearly every case will respond to the treatment. The spontaneous attacks will not occur, the paroxyms only recurring after violent contact with or inhalation of the irritating substance, and then they are mild in character, short in duration and very little of the concomitant symptoms are present.

Treatment: In a paper[2], which I published four years ago, I advised the injections of the spheno-palatine ganglion as a cure for this syndrome, stating that I obtained positive results in nearly every case thus injected. That report was given out several months after the various injections had been performed; since then I have had a few recurrences in these injected cases.

This procedure is quite simple and I still believe is worthy of a trial in all cases except where the economic conditions prevent same being attempted. By this I mean that if the patient comes from a great distance to obtain relief and desires a permanent relief, without much chance of recurrence, I believe it is better to proceed to the more radical treatment, i. e., bilateral ethmoid exenteration.

There is no special method of performing this operation, but it is very important that a complete exenteration be done, either with or without the removal of the middle turbinate. I, personally, prefer to remove the tubrinate at the same time, unless there is some special contraindication. In other words, when the patient presents himself with the typical symptoms of a hyperesthetic ethmoiditis and the diagnosis is made, we wait until the acute attack has subsided and then proceed with the treatment.

The spheno-palatine injection is performed in the following manner:

The posterior end of the middle turbinate and the mucous membrane behind same are thoroughly cocainized with a twenty per cent solution. The hollow sword needle of Sluder's, which is a straight needle 5¼ inches long with a cross bar near the end, is then introduced from the septal side of the nose and the posterior end of the middle turbinate is transfixed. The needle is then pushed upwards, backwards and outwards, through the bony wall, which is the anterior boundary of the spheno-maxillary fossa in which the ganglion lies surrounded by connective tissue. A 5 cc Luer syringe, filled with a one per cent phenol in ninety-five per cent alcohol is attached to the hollow needle and a few drops, 5-15, are injected. Often the bony wall is so thick that it is necessary to employ the mallet to drive it through.

In the great majority of cases this prevents subsequent attacks, but, as stated before, if attacks recur, the exenteration must be resorted to. The following clinical case illustrates the entire subject quite thoroughly.

Miss C., stenographer, aged 25 years. Referred by family physician April 8, 1916. States she has had trouble with nose for two years, this being attacks of severe sneezing, with a great deal of watery discharge following same. She also states that she feels the irritation which brings about the sneezing attacks, is located on the left side of nose. Uses eight to ten handkerchiefs after sneezing attacks. Her family physician cauterized the nose some time ago and also used some stock vaccines. No throat nor ear symptoms were present. Does not breathe through the nose very well at any time during or between attacks.

Condition is some better in the summer. Patient states that nostrils seem to be getting smaller.

Examination Nose. Right side. Some mucus present. Mucous membrane rather pale; not much breathing space.

Left side. Same condition. Can hardly see any of the structures, due to boggy appearance of inferior turbinate which is pale. Vestibulitis on both sides. No fissures.

Mouth. Teeth in repair, good condition. Small submerged tonsils.

Ears, right and left, normal.

After shrinking with a five per cent. cocaine solution, marked irritation of the mucous membrane of the nose can be determined, and a thickening of the septum high up is seen. Ridge pressing against inferior turbinate posteriorly. Anemic middle turbinate.

Left side. Ridge extending all the way back. Cannot see middle turbinate on account of this ridge. Discharge present, which is clear.

Subsequent history. Patient further states that she cannot use powder on nose as it irritates. Lavender also irritates.

Diagnosis. Hyperesthetic ethmoiditis.

X-ray pictures show normal sinuses. Advise submucous and left ethmoid exenteration.

May 2, 1916. Under local anesthesia, a submucous resection of the septum was done in the usual manner and a left middle turbinectomy and ethmoidectomy at the same time.

May 10, 1916. Uneventful recovery. No more sneezing.

July 2, 1916. Has a great deal of sneezing and discharge from right side of nose for past ten days. Examination shows left side in good condition. Right vestibule excoriated. Advised alcohol injection into right spheno-palatine ganglion.

July 5. Injected right spheno-palatine ganglion.

August 27. Has had no trouble since the injection.

April 29, 1917. Has been sneezing a great deal for past two weeks and complains of irritation from the right side. Also a great deal of watery discharge from right side. Advised right ethmoidectomy, which was done with removal of middle turbinate. Uneventful recovery.

On June 22, 1917, she writes: "My nose is in fine condition, breathing capacity much improved and no sneezing."

July 18, 1918. Has had no trouble since last operation and feels fine.

In order to obtain a report as to her present condition I wrote regarding same and on May 10, 1919, received a letter in which she states: "I am feeling fine and have had practically no trouble since my last visit."

1. The injection of the spheno-palatine ganglion in some commoner diseases of the nose. Illinois Med. Jour., 1915.
2. Concerning some headaches and eye disorders of nasal origin. Greenfield Sluder, 1918.

DISCUSSION

Dr. John A. Cavanaugh (Chicago): I thought some of these cases can be taken care of by local treatment without this radical procedure which the doctor advocates.

One patient, a young lady, asserted that every morning at home, when she arose, she had these sneezing spells but while on a visit to some friends on the south side of the city she had no such attacks. As soon as she got back home to her room, the next morning, immediately the attack came on. On removal to another part of the house she had no such trouble.

He found suction and atropin or belladonna will aid some of these cases. More severe types in which these local treatments do not do any good. More radical treatment is indicated.

Dr. Oliver Tydings (Chicago) had never failed to find some pathology in the nose the correction of which would give relief. It may be necessary to straighten the septum, to cauterize over the turbinal bones or to go to the extreme extent of opening up the ethmoids, but whatever surgical procedure is necessary in these cases, atropin will give some relief. There are also various mineral oils and various applications that are well known, such as adrenalin. He had not used cocain for those cases in a good many years as he found that it did more harm than good. The same may be true of adrenalin where persistently used.

There is no question but what the injections that Dr. Pollock speaks of will give relief and will give absolute relief and in a very few minutes but, at the same time, whether that is the best way to do in every case is a question. The etiological factor that starts it will keep it in existence until it is cleared up, and to clear it up should be our aim.

Dr. Harry C. Poole (La Salle) asked the essayist whether in those cases of idiosyncracies Dr. Cavanaugh mentioned he would recommend the radical treatment or would he try to keep the individual away from the exciting cause of the trouble? He had in mind a child of about twelve years who has hyperesthetic ethmoiditis, the attack being brought on by the dust from horses, if she attempts to ride in a buggy or gets near a barnyard where there are horses.

Dr. Goode (Chicago) agreed with Dr. Tydings that in hyperesthetic ethmoidal conditions there is an underlying sinus disturbance, not necessarily a suppurative affair, but an impairment of drainage to some extent. You will sometimes find these cases all at once giving as much as a teaspoonful of liquid running from the nose. Where was it stored up? It was stored up in one of the sinuses. If the symptoms are severe enough to inject the spheno-palatine ganglion, he would rather clean out the ethmoid cells first, and if that doesn't do the business, then inject the spheno-palatine ganglion.

He thought that where you clean out the ethmoid cells you will find this condition is relieved, providing your drainage to the frontal sinus is sufficiently opened. That can be determined after the ethmoid cells are removed.

After the removal of the ethmoid cells he believes

it is very important to apply tincture of iodin on an applicator to the entire roof of the nose to prevent meningeal complications.

Dr. Pollock (closing discussion): Mr. Chairman, I am sorry that I was unable to read all of my paper because in the paper some of the points are covered that have been brought up here.

I stated in the paper that before we make a diagnosis all forms of sinus diseases, as far as possible, are excluded. I give the differentiation between hyperesthetic ethmoiditis and hyperplastic ethmoiditis and meningocele, and the discharges which Professor Fein has shown are due to sexual indulgences and irritation. I have tried to make it explicit that if you examine the nose between the attacks, the conditions practically will be found normal; you can never look in any nose and see a normal nose. You have always got some spurs or little slight defects. In this case that I recited there was a bad reflected septum with a ridge, and I removed that. She had these attacks until I did a bilateral exenteration.

I agree with Dr. Goode that possibly you can reverse these conditions. I said that the injection is a more simple procedure than ethmoidectomy. You are not removing any tissue of the nose. Some patients will object to an operation of removing tissue from the nose, while they will not, in my experience, have an objection to injecting a little alcohol, which is a very simple procedure.

As I stated, some of these recur, and if the patient wants relief without any danger of recurrence, then I do the ethmoid exenteration. Some of these milder cases, to which Dr. Cavanaugh referred will clear up. In the paper I said that I treat the acute condition first. I don't operate on these conditions during the acute attack. They will all subside by suction or atropin and the like when the irritation is removed and when you get away from the cause of the irritation. I have no doubt at all that the case the doctor spoke of, because I have had dozens of similar cases, would not get this attack if the patient were not brought in contact with that specific irritant which acts as an idiosyncracy to that particular patient. I can smell lavender and take auto rides and it doesn't effect me. The underlying etiological factor is not known. I think it is due to some disharmony of the ductless glands which brings about this condition which simulates asthma and hay fever, and so on, and the exciting cause is one of these things about which we know.

As I said, I had two young, unmarried women who worked in Fields', and any time that a customer came in with any sachet, they would immediately get these attacks. Both of these patients were cured by the process I mentioned. Of course, it is much simpler to remove your irritant than it is to do an operation. I advise Dr. Poole to have the patient stay away from the horses, but that, of course, it is sometimes impossible to do. I would certainly advise a bilateral ethmoid exenteration. It is very simple and is easily done without any danger to the individual.

I think that after you read the paper and see these various points that I have covered in the paper, you will find that I have practically touched upon all these things which the doctors have mentioned.

As I stated before, it isn't a serious disease; it isn't dangerous. A bilateral exenteration will cure it except when brought in touch with a very violent contact. By that I mean I have had a patient who couldn't stand an automobile ride because of the dust. After I operated on her, she would take a long automobile ride and if it was exceedingly dusty she would probably use two or three handkerchiefs and that would be the end of it.

Dr. Tydings: One word on which I want to disagree with the essayist, and that is that it is not necessary to remove the turbinals to clean out the ethmoid.

Dr. Pollock: I said it could be done with or without the removal, but personally I preferred not to remove them. It can be done with or without.

DEFINITE TREATMENT OF THE PNEUMONIAS. TREATMENT OF INFLUENZA.

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The definite treatment of the pneumonias is so called because it uses definite agents for definite purposes on definite indications.

Laboratory work has shown that quinine dihydrobromide possesses exceptional merits for administration in pneumonia. All cinchona derivatives are powerful germicides against the pneumococcus, and all of them prolong the life of animals experimentally infected with pneumonia germs or poisoned with the pneumotoxin of Cole, or with the lung exudate extract of Cohen, Kolmer and Weiss, from two to four days beyond the life of control animals similarly infected or poisoned. Quinine is used therefore as an antibacterial and antitoxic agent. Its value was established clinically long, long ago; the explanation has been forthcoming only recently. Pneumonia and malaria offer in this respect (value of cinchonics) a close parallel. Those who deny the value of quinine in pneumonia do so blindly and from prejudice. They haven't tested it and cannot know.

Tested by the antiseptic method of Kolmer, quinine salts kill pneumococcus cultures of type I, II and III in dilutions of from 1:20,000 to 1:200,000; the sulphate being the least powerful,

*Read by Dr. Wm. B. Peck, Freeport, Illinois, before the Jo Daviess County Medical Society, November 13, 1919.

the dihydrobromide the most powerful. Both hydrobromide and dihydrobromide possess the peculiar property of being more active in serum than in salt solution. While the other cinchona derivatives lose in germicidal power from 10 per cent. (in the case of quinine salts in general) to 80 per cent. (in the case of ethyl hydrocuprein) when the test is made with serum instead of salt solution as the suspension medium, the hydrobromide and the dihydrobromide increase in power 100 per cent. Since action in the body takes place in a medium of serum or some analogous fluid, it will be seen how valuable therapeutically this peculiarity of the bromide salts of quinine is. Moreover, although cinchonism is almost unknown in lobar pneumonia, no matter what salt of quinine is used, it does occur in a certain number of cases of catarrhal pneumonia when the ordinary quinine compounds are given in dosage; but very rarely occurs when the bromides are used. It can be still further guarded against, if need be, by the association of ergot with the quinine compound; and ergot itself is of considerable value in the pneumonias through its action upon the vessels.

The doses must be large. Small doses are futile. To give them is playing with the drug, not using it. The ordinary plan is to give 25 grains of quinine dihydrobromide by mouth as soon as the patient is seen, and to repeat every three to four hours, 5 to 15 grains, according to effect, as indicated by the reduction of temperature. Reduction of temperature is not the object of the treatment, but is an index to the full physiologic action of quinine in a patient having fever. A single dose will often bring the temperature from 105° F. to normal. In that event the dose is cut down to 5 grains, repeated in four hours. If, on the contrary, the temperature is brought down only 2°, the second dose would be 15 grains, and the third after three hours more, 10 grains; and so on, according to effect—aiming to keep temperature at about 100° F. Patients are not to be waked to have temperature taken or to get medicine.

The hydrobromides of quinine are not suitable for intramuscular injection, not being sufficiently soluble; but may be used for intravenous injection in 0.5 to 1 per cent. dilution in physiologic saline solution. The dose then is about 10 to 15 grains in 100 to 250 mils of the hot saline fluid; subsequent doses being given by mouth in the same way as when the first dose is also given by the mouth. The initial intravenous injection should be used when the case is severe, or when the patient is not seen until the third day or later. For intramuscular injection quinine and urea hydrochloride can be used in 15 to 25 grain doses every 3 hours, with proper precautions to avoid slough.

The most practical expedient in private houses generally, is to give the dihydrobromide by mouth; having 5 grain capsules made; and to use from 1 to 5 at a dose, according to the indications.

The use of quinine must commonly be supplemented by that of a trustworthy preparation of the posterior pituitary principle, given intramuscularly every three hours until systolic pressure in millimeters of mercury exceeds the pulse frequency in beats per minute by 5 points; that is to say, if the pulse is 120, for example, the systolic pressure should be brought up to 125, if possible. In cases of hypertension, the pituitrin may not be needed.

Digitalis is given routinely in doses equivalent to ½ grain of good leaf, or 5 minims of good tincture, every four hours, from the beginning, to digitalize the heart. Should respiration frequency rise, or diastolic blood pressure in millimeters of mercury fall so far that the two curves tend to approach within 10 points, or should the diastolic blood pressure remain below 60, independently of respiration frequency, digitalis is increased to full doses (say 30 minims of a good tincture, or 3 grains of good leaf); preferably using some preparation suitable for intramuscular, or at least hypodermic, injection. This is repeated every fourth hour until the interval of 10 points is attained and maintained. Larger doses may be given if necessary. In the pneumonias, rise of diastolic pressure shows the digitalis effect. It is both purpose and index.

Such treatment is not a substitute for fresh air, which must also be provided; preferably cold air and open air for lobar pneumonia in robust adults; warm air (60° to 70° F.) in bronchopneumonia; and for children and the aged, a temperature of 70° to 80° F., irrespective of the pathologic type of the malady.

As to bacterins and serums, these may be used in conjunction with the definite treatment if desired. To put it the other way round, quinine, digitalis and pituitrin administered according

to the *definite plan* may be used to aid specific serum when this is obtainable; and without the serum when it is not obtainable. It is only in type I infections that serums have thus far proved useful on any large scale, and even here their value is but slightly greater than that of quinine and its supplementary drugs. Nor is it always practicable to administer the specific serum in the quantity and manner necessary. Although the value of bacterins is still in dispute, there is no question in the minds of many competent observers of their efficacy when used properly, *i. e.*, early, and in mixed and sensitized cultures. Still, for the present, the chief dependence, especially in type II, type III and type IV infections, must be upon drugs; and no drugs can compare in therapeutic efficacy with quinine, pituitrin and digitalis, administered according to the definite indications of the definite plan.

Other agents, as oxygen, atropin, camphor, strychnin, etc., are reserved for special indications. The urine is kept alkaline and the urinary output is maintained at not less than 2 liters, and if possible 3 liters (quarts). During convalescence strychnin sulphate (1/60 to 1/30 grain) in Basham's mixture (half an ounce) is given thrice daily for a week or two.

Concerning influenza. Bacterins (mixed streptococcus, pneumonia and so-called influenza) are useful both in prevention and treatment. Their chief value is in preventing streptococcus infection, or diminishing its virulence; secondarily in preventing or lessening pneumococcus infection. Every case should be regarded as a potential pneumonia from the beginning, and kept at absolute rest for ten days after fever disappears. Otherwise, even if pneumonia does not develop, heart disease will. The heart weakness may not show for six months, but it's there from the first. That is the reason acetanilid, phenacetin, aspirin and the like should not be used. They don't always kill, although they do kill in many cases; but they always injure the heart—even when the patient escapes with his life for the time being. They act as aids to the influenza poison. To oppose the influenza poison one may use cocain, strychnin, atropin, digitalis, ergot, according to indications. Most cases are helped by giving at once ammonium or sodium salicylate, or sodium benzoate, or both, in doses of 10 to 15 grains every two hours till the ears ring; then every four or six hours. The salicylion is useful in influenza; but the acetylion is harmful. That is why sodium salicylate is useful and salicin is useful, but aspirin (acetyl-salicylic ester) harmful. A solution of the salicylate or salicylate and benzoate can be made up with nux vomica tincture (20 minims), infusion or wine of coca erthroxylon (℥ii) or fluid extract of coca (℥i), whichever is available; and liquor ammonii citratis to make the dose a tablespoonful or more. The coca covers the taste beautifully. Moreover cocaine is the direct and almost complete physiologic antagonist to the influenza poison. It stimulates and sustains the functions which that poison depresses. "True" salicylate and benzoate are to be preferred to the synthetic products unless these last are 100 per cent. chemically pure. The common impurities irritate the stomach and kidneys. The urine must be watched carefully for any sign of renal irritation and the medication is to be modified, should such appear. If a sedative seems necessary, on account of cough or restlessness, half a dram of paregoric or a small dose of codein (⅛ grain) or bromid (5 grains) may be added to the dose. Heroin is to be avoided, just as aspirin. After three days the mixture is to be stopped and quinin hydrobromide given in doses of 5 grains every three hours; or if there is actual pneumonia then the full dose with the pituitrin and digitalis. Alcohol is highly useful and often imperatively needed.

Cinchonia and vux vomica help convalescence.

ORAL FOCI OF INFECTION FROM THE DENTIST STANDPOINT.

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The question of oral foci infection has been thoroughly discussed by many writers until it has almost become trite, nevertheless, in spite of all this, the wide difference of opinion that exists about the subject is appalling. Why is it that no definite basis of agreement has been arrived at between the medical and dental diagnostitian as to the real significance of oral foci of infection? Even at this late date some are inclined to attach very little inportance to it while others go to the other extreme and place the greatest significance to it, believing that foci of infection about the roots of teeth are the sole source of secondary

infection to the practical exclusion of all other foci. Such a wide difference of views does not exist in other branches of medicine. The writer feels that the reason for such a diversity of opinion lies in the fact that insufficient instruction in pathology and lack of instruction in bacteriology in our colleges is at the bottom of the evil. As long as we possess limited information and entertain narrow points of view it is hardly to be expected that we shall arrive at a scientific conclusion on this important matter. The number of physicians and dentists who are satisfied in making an empirical diagnosis is fortunately decreasing for many have learned by sad experience that such methods of diagnosis are generally wrong, with the result that the treatment and prognosis is usually disappointing in results.

Not many years ago we gave very little thought to the etiology of, for example: pyorrhea alveolaris. Today we assign a number of causes to this condition. Some of the etiologic factors are well known to all. We may count among them chronic irritation due to tartar, decay and defective work, insanitary conditions about the mouth, with resultant lodgement and putrefaction of food particles, constitutional and metabolic reactions, faulty articulation, and bacterial and parasitic causes. The organisms generally found in this latter phase are the various members of the streptococcic group, spirochetes and fusiform bacilli. The two latter are often found in typical cases of Vincent's angina, also many types of putrefactive bacilli, ameba, etc. The micro-organisms present in septic pockets about the teeth are very numerous.

Upon examining the exuding pus in pyorrhea pockets, we find a number of the above named organisms present, but by wiping away the superficial discharge and making a direct smear or a culture of the deeper accumulations we find streptococci and staphylococci predominating, the streptococci often being present in pure culture, usually as the streptococcus viridans variety.

While it is very unlikely that any of these organisms are the specific causative agents of the pyorrhea, it is generally agreed that most of them may become pathogenic and under suitable conditions are capable of producing acute and chronic local inflammation.

It is of greatest importance always to trace focal infection and not merely to make a snapshot empirical diagnosis, ascribing the cause to some dental trouble, just because such a point of view happens to be the prevailing and fashionable viewpoint at the present time. It is needless to state the utter worthlessness of any such diagnosis, made without all the substantiating evidence obtainable from laboratory findings. One must constantly remember that it is unlikely that any of the organisms mentioned ever cause local or systemic infections, unless at the same time there is some pre-existing abnormal condition present which diminishes the resistance to the invading organisms or their toxins. Bacteriologists are fast changing their views with regard to specific infections and it is of vast importance that the matter of toxemia be considered seriously; thus in all questions involving infections, it is necessary to take into consideration the fact that while it is true various organisms, according to Vaughan of Ann Arbor, have their individual toxins which may be more or less harmful, all organisms have one common toxin, namely, their *albumose constituents,* the latter being largely contained even in organisms of a saphophytic nature. This common toxin is now being accepted as playing rather a preponderant role in most infections. Further the entire potentialities of the body must be considered for they all come into play. It is entirely fallacious to confine one's investigations to a limited sphere without giving due consideration to the entire body forces.

In studying these cases it is essential to avail one's self of all scientific knowledge and laboratory research. It is just as wrong to belong to the ultra-conservative group who look upon this as a passing fad, as it is to belong to the overzealous class, as the opinions of both groups are based on insufficient experimental facts. It is proper at this time to approach these studies with an open mind, being constantly on the alert for new and substantiated facts, and constantly guarding against unwarranted generalizations and conclusions or expressions of views derived from ultra-scientific investigations leaving out of consideration as is frequently done the natural sequences of life principles.

We may define a focal infection as a circumscribed lesion of a bacterial nature, later resulting in infection of a contiguous or non-contiguous part by the same bacteria or their toxins.

From this definition it is clear that even if the

presence of bacteria in a circumscribed area is demonstrated, that of itself does by no means constitute a focus of infection. It is an old established fact that bacteria may be present in certain parts of the human body for long period of time without creating bodily infection at all, and without even producing local symptoms. For example, the organisms of diphtheria, pneumonia, spinal meningitis and many others are frequently carried about by perfectly healthy people for a great length of time and these people are entirely ignorant of the fact that they harbor organisms of such a highly infectious nature.

Whether this peculiar condition is due to the organisms present being in such a low state of virulency that they are harmless, or are walled off, or that the host does not seem to be in a receptive state for their ill effects, or that reaction factors in their surrounding media are unfavorable, matters not. One thing we must admit, namely, that these organisms, although present in these patients, do not necessarily cause local or systemic disturbances and do not constitute foci of infection. Failure to recognize these facts will lead inevitably to much misdirected effort and to a disappointing treatment. However, another factor has recently been injected into the consideration of infection. It has long been known that occasionally certain infections have a restricting influence on the development of other latent infections, but Joseph Miller and Dr. Lusk, both of Chicago, have recently shown that a great tendency exists for numerous infections to light up more serious, but latent, infections, even though the two may be caused by different bacteria. Their theory is probably explainable by the theories of allergic reactions, or by the fact that the common albumose toxin has a greatly stimulating effect on such latent unsuspected infections, as, for instance, a walled off tubercular focus. That these theories are correct clinically has been proven repeatedly by these able investigators.

It is important to note that in growing the organisms which interest us in the laboratory, various kinds of media are used, and for the development of streptococci only blood agar is suitable, otherwise the streptococcus viridans, for example, will not grow at all. In the cases that have come under the writer's observation, he has obtained excellent results by using 10 c.c. of ox blood in 90 c.c. of 0.8 per cent. of agar. On this medium the streptococci viridans will appear usually after twenty-four hours' growth at body temperature, showing the characteristic small green colony, and the hemolyticus with its small hemolysed areola. It is further to be noticed that any degree of selectivity that organisms may possess is rapidly lost in their artificial reproduction and that, therefore, any experiments to be made with them which include the activities of the selective factor must be carried out with organisms grown on special brain culture media and not after such artificial growth is more than seven or eight hours old as otherwise the selective factor will have been entirely lost.

It might be worth while to say a few words about the spirillum, which is associated with a fusiform bacillus found in large numbers in Vincent's angina. These organisms are found in normal individuals in the gingival margins about the teeth and within the crypts of the tonsils. They are sometimes found in almost pure culture in severe cases of pyorrhea. This disease may progress rapidly, causing destruction of the soft tissues and alveolar process, even in patients whose teeth and gums before such infection seemed to be quite normal. It is more often seen, however, in individuals who are careless in the care of their teeth. This condition yields readily to local treatment. The statement often made that these cases do not permit of any instrumentation whatever, is surely fallacious, true, rough or unskilled curetting and scalding is not permissible, but all irritating concretions or foul matter should at once be carefully removed, the part painted with two per cent. chromic acid solution and followed by an application of forty per cent. tincture of iodine and the patient instructed to use liberally a mouth wash made up of a ten per cent. solution of permanganate of potash. This organism, together with the spirillum, can best be stained for microscopic examination by using carbol fuchsin for one minute, heating the slide gently after adding the stain.

Should an oral focus of infection actually be demonstrated then there are two other factors that are essential before the host will suffer from constitutional derangements of any kind, namely, the bacteria or their toxins must spread by metastasis or must enter the blood stream, and the local area to become secondarily infected must be in such a state of lowered resistance that it will receive the organisms or their toxins, and permit

of the propagation of the bacteria together with a possibility of their virulent faculties to develop. In other words, there must be a *locus minoris resistentiae*. The presence of bacteria somewhere in the oral structure with a synchronous appearance of arthritis or endocarditis is by no means any evidence that one is due to the other. It is true that under proper auspices an oral infection might produce endocarditis, but discriminating care should be exercised in determining a diagnosis, for let us not overlook the fact that alveolar infections are frequently present in the young, particularly in the children of poorer districts it, nevertheless, is but comparatively rare that we find these children suffering from endocarditis unless they have previously suffered from attacks of tonsilitis or scarlet fever.

It would seem, therefore, to definitely associate endocarditis or for that matter, arthritis, always with dental foci of infection is at least a very debatable standpoint to assume.

It has been claimed that in some cases of skin diseases, for example, eczema, oral infection has played a distinct part. Billings and others have reported cases of disseminated sclerosis and iritis as probably due to this cause without, however, giving any substantiated evidence. In the writer's opinion, such cases as these depend etiologically on a general toxemia resulting from bacterial decomposition whether the bacteria be pathogenic or saprophypic matters not. The albumose contents will be as toxic in one case as in the other but, of course, such toxins do not necessarily come only from dental infections. Furthermore, the effect of one mild infection accelerating the activity of another mild or dormant infection should in this connection not be lost sight of.

About a year ago it was reported that rabbits injected with streptococcus viridans obtained from human alveolar infections had in all cases and by virtue of peculiar selective characteristics of the organisms, attacked the serous and synovial membranes of these animals, all of them showing arthritis and endocarditis. The attempt was made thereby to prove that the streptococci contained in granulomas at the root ends of teeth had a very definite bearing on the sequential results, namely, endocarditis and arthritis. These experiments have been widely discussed and also by men who lack scientific training and who accepted the statements as facts. In these experiments the endeavor is made to prove the constant selectivity of organisms. It is claimed that when organisms are obtained from such locations as human tooth granulomas and abscesses at the apices of teeth, particularly when obtained from patients suffering simultaneously from arthritis, their introduction into the ear vein of rabbits invariably attack the synovial membranes of such animals, and that this shows their tissue selectivity for this particular tissue. Such findings, however, *do not prove any such fact*. It has since been found that any organisms introduced in such manner attack the synovial membrane producing arthritis and endocarditis. This includes streptococcus viridans obtained even from healthy human mouths. Evidently it is not the selective action of organisms that produces these results, but it is the fact that these particular tissues are very amenable to such attacks by any organisms, not a chemotactic process between the organisms and the tissue at all. Many investigators have repeatedly proven the fallacy of the selective factor and have demonstrated the same end results, namely, arthritis and endocarditis in rabbits by injections of bland chemicals, and as has been shown by Professor Rufus in New York, Joseph Miller of Chicago, even by the introduction of plain egg albumin. (Furthermore, we all know that rabbits are particularly susceptible to the activities of streptococci, just as other animals show particular susceptibility to other organisms, as for instance, the white mouse to the pneumococcus). Naturally, many such cases have been cited as proof of these theories when, as a matter of fact, the animals had actually been so overdosed with bacteria that they exhibited all symptoms which would naturally be expected in an animal suffering from a general septicemia.

Rheumatism has, for a long time, been ascribed by the medical profession at different periods to different organisms, and at present the etiologic factor seems to be commonly accepted to be the streptococcus viridans. The name rheumatism simply describes a complex of symptoms, such as arthritic disturbances, changes of temperature and involvement of the serous and synovial membranes, including that of the endocardium. The more definite information which we are obtaining from bacteriologic laboratories tends to show that some different forms of arthritis are due to specific organisms; for example, such as gonorrheal arthritis in typhoid and diphtheritic arthritis.

Others again depend upon a general toxemia. All of these are classes of arthritis which certainly do not depend for their etiology on streptococcus infections derived from oral foci and no doubt as time progresses we shall hear of other forms of arthritis which will be linked in name to their specific causative organisms. It is, therefore, clear that all cases of arthritis are by no means due to the streptococcus viridans and certainly not to those only found in oral infections.

An infection, as we have previously stated, is a morbid bacterial process in which the organisms or their toxins have found their way into the blood stream and by a process of dissemination have established similar bacterial seats of infection in tissues, either contiguous or non-contiguous.

It seems that when we speak of infections we usually refer to the absorption of bacteria and only seldom refer to what is at least as important toxemia due to the general toxin contained in all organisms. Evidently the dividing line between endo- and exo-toxins cannot be drawn too definitely. Toxemia refers to the absorption of bacterial poison. It is not necessary, therefore, in order for a secondary infection to take place, that bacteria with their specific toxins must be transferred from one situation to another, but the harmful results of same may be produced by their general toxins or albumose constituent. This also is equally true of saprophytic organisms.

Organisms may do their harm directly to the tissues, or their toxins may so hinder the defensive powers of the body as to permit or invite the future attacks of organisms from entirely different sources altogether.

The entire surrounding media of the hormones of the internal glands may thus be changed by the results of toxic infections, and as our antibody production is in large measure dependent upon the proper activity of these hormones, it may be much decreased by such effects. These toxins do not necessarily have to come from oral foci of infection, as there are many other sites of possible foci of infection which may produce just such toxins. This may account for some of the obscure cases of arthritis which are produced by albumose toxins lowering the resistive power of the serous and synovial membranes, so that bacterial invasion from the same or from still another source is invited.

Naturally, deep-seated infections and general sepsis must have their cause in some localized infection somewhere in the body. The same is true of general toxemia. We might mention aside from dental reasons however many others such as otitis media, pyelitis, tubercular processes, intestinal disturbances, digestive chemical errors, anaphylactic disturbances, all of which may be due to some other local process or to a toxemia indirectly responsible or due to some other local infection. The toxic properties other than special bacterial toxin may be illustrated by examining cases of infection carriers such as persons known as diphtheria or meningitis carriers who suffer from the ill effects of the general toxemia, but nevertheless have the good fortune to have sufficient specific antibodies to ward off the specific bacterial poison.

There are so many angles to this question that it seems astonishing that so much stress should have been laid on dental infections in particular, when in reality if we consider these in particular they should, according to all scientific reasoning, be even less apt to be the etiologic factor of such secondary infections for which they are usually blamed. This is even more pronouncedly emphasized in small granulomas at the end of tooth roots after osteoclastic bone destruction when we find bacteria contained in thick fibrous granulation tissue surrounded for months and sometimes for years by their own offal with very little fresh nutrient material, almost entirely walled off. We also know nothing about the fluid contents as regards alkalinity, or the glycogen contents, data which are of the greatest importance if the virility of the organism is to be considered. We know nothing of the virulency of the organisms as to their power to traverse the thick envelopes of fibrous tissue. If it is a fact that these organisms are really pathogenic due to their specific toxin, and are constantly and slowly piercing the fibrous wall and are gaining access to the blood stream, would we not, by such a frequent and gradual infiltration, be justified in the belief that such an osmosis would tend to produce a high degree of tolerance, inasmuch as this gradual invasion of bacteria would act much like the very best sort of vaccine? It is readily seen there are a great many vital questions to be considered and to follow blindly new theories without investigation should not be the road for the scientifically developed mind to travel. There are many avenues of secondary infection which rarely are thought

of, for instance, such as the results of infection from eruptive fevers. If it is finally and definitely determined that the source of a morbid state lies in a certain focus of infection, then let it be our duty, and also that of the physician, to locate that source and not to ascribe it to a certain locality merely because the prevailing idea happens to ascribe most diseased conditions to a bacterial infection from a certain localized area at this particular time. In the young, tonsillar and middle ear infections surely play a great role in the general status of health, and there again the mere presence of organisms is in no wise proof that these situations are the sites of focal infection. We find in children frequently, and for that matter, also in adults, at times a large increase in the colon bacillus. Does that mean that the crypts in the colon are foci of infection? No, it is even desirable that these colon bacilli be present in their proper location. We know that middle ear infections may be present for a long time without causing the slightest local or constitutional trouble. Thus, streptococci and diphtheria bacilli, as well as a large number of other pathogenic organisms may be present for weeks and even years without causing any ill effects. These may become very active, however, as soon as another infection takes place in some other locality in the body even though this second infection may be due to an entirely different organism.

It would seem to the writer that in order to arrive at some sane avenue of approach to scientifically investigate the matter of oral infection and its consequences, we are obliged to view it from two widely different avenues of bacterial location. Namely, the one a filth condition about the teeth caused by unhygienic neglect even in the mouths that have received better care as a result of pyorrheal infection; in other words, an infectious area practically open, and from which the bacterial infection can easily spread to adjacent tissues, such as the tonsils, nasopharynx and alimentary tract, and could readily cause invasion of bacteria with consequent bacterial and albumose poisoning. And the other that condition found at times where bacteria are supposed to be in granulomatous tissue about the apices of devitalized teeth and this again, in the writer's opinion, should be definitely subdivided into two classes, namely, one showing a very slight area of radio-translucency which may simply demonstrate osteoclastic bone destruction without any infection at all and the other a large area of that sort less distinct in outline which latter to the writer's mind would indicate a definitely spreading invasive infection of a pathogenic nature, and in this category the writer would also include such spreading infections as at times are seen on the x-ray pictures reaching into the antrum or into the inferior dental canal or mental foramen, these unquestionably being dangerous seats of infection and should rationally be looked upon as such. In this connection it may be well to emphasize the very great need of careful examination of x-ray pictures inasmuch as frequently the slightest distortion will lead a careless observer to mistake an error in the transmission of the light to believe he actually can see the root ends of such teeth penetrating the floor of the antrum or the inferior dental canal or mental foramen when such a picture is merely an artifact. As far as the writer's clinical observation goes, he is forced to admit that the greatest number of those spontaneous cures with which he has become acquainted were achieved by prophylatic treatment or extraction of such teeth as were enumerated in the first category and where secondary infection resulting from the local filth condition has followed, and where the infection has occurred on the basis of a toxemia due to albumose, but he has found that in other cases where only devitalized root apices with small radio translucent areas were supposed to be at fault, very little benefit followed either extraction or treatment. Where the larger radio translucent areas were found extraction and proper currettment should naturally always be followed by beneficial results which should justly be expected.

Considered from a bacteriologic or biologic viewpoint, the writer is at this time not at all convinced that these areas, commonly called infected (speaking of the smaller radio translucent areas), merely because they show radio-translucency are invariably infectious or that organisms of harmful influence are even present. Such radio translucency may be produced by many agencies other than bacteria. The dental treatment, the use of arsenical applications to a pulp, or the introduction of coagulating substances, as formaldehyde, might easily coagulate the lymph in the lymph spaces about the root ends and thereby produce such a translucency without meaning an infection at all (in fact, it has been shown by Eugene Tal-

bot, of Chicago, that these esteoclastic destructions may result from any kind of irritation in the treatment of the root canal of these teeth); further, the method by which the harmful bacterial invasion would necessarily have to take place from these granulomas is one which the writer is not ready to completely admit at this time.

True, we hear of many spontaneous cures from tooth extraction in many suspected cases, but the writer has seen also many instances in which teeth were removed without any constitutional benefit whatever following such procedure, or where the benefit was only of a temporary nature. If cases are presented where oral foci of infection are actually shown to be the cause of a secondary infection, or where all other sources of infection have been ruled out and only as a matter of last resort these suspected areas are to be removed by extraction of suspected teeth, then let it be understood that the mere removal of the teeth, even if followed by a slight scarification with a curet is not at all sufficient to produce the desired results. The operation in such instances must be concluded by vigorous surgical interference, such as properly cutting away all diseased bone and granulomatous tissue that may have been suspected to be present in the x-ray examination. This does by no means mean that such radical surgical procedure should be resorted to in the ordinary cases of extraction of teeth for dental reasons. Many of these so-called granulomas which have been the cause of removal of so many teeth can and have been, treated with the result that pictures taken at a later time showed these areas completely healed, or on the way of being completely healed. The ruthless unscientific extraction of teeth is entirely inadvisable in the estimation of the writer. When the treatment instead of the extraction is deemed the more advisable procedure, the fact that possibly other infections at a future period may again stimulate the supposedly cured alveolar condition into real activity, must always be kept in mind. This is a view justly held by men like Miller, Lusk and others. Therefore, x-ray pictures taken at one period showing a negative condition may very well at some future time show great bone destruction. Much more beneficial clinical results have been obtained in the cleaning up of superficial infections such as are found in unclean mouths, with filth and broken down decayed tooth roots which are due to neglect or to pyorrhea, by simple prophylactic measures than are found as the result of extraction after diagnosis of probable root infection. I am reminded of a case under observation at the present time where a woman of about 35 years of age and suffering from arthritis was advised to undergo dental prophylactic treatment and a blood examination before treatment showed the following:

Erythrocytes	4,500,000
Leucocytes	11,500
Hemoglobin	0.9
Color Index	1
Polymorphonuclear	50%
Small Mononuclear	46%
Large Mononuclear	4%
Transitional	0%
Eosinophiles	2%
Basophiles	0%

Red Cells normal in shape and size.
Stain well.

and after treatment—

Erythrocytes	5,300,000
Leucocytes	6,400
Hemoglobin	100
Color Index	1
Polymorphonuclear	65%
Small Mononuclear	33%
Large Mononuclear	1%
Transitional	1%
Eosinophiles	0%

This woman, suffering pain from pyorrhea, had her teeth x-rayed and no less than *eight* were found with radio translucent areas, but notwithstanding the fact that she only received local ordinary prophylactic treatment, in other words, simply proper scientific cleaning of the denuded surfaces of the roots of the teeth and the gingival pyorrhea pockets and that *nothing* whatever up to that time at least had been done to overcome any possible infection from the so-called granulomas, her improvement upon examination as far as blood differential was concerned, you will readily see was striking; in fact, become almost normal and the writer fails to see that any other great improvement is to be expected following the subsequent treatment for extraction of the roots showing infection by granulomas. The rheumatic condition had also vastly improved. This is one of those cases where possibly the rheumatic condition may have been due to oral sepsis; not to any particular organism or to any apical infections, but to a general albumose poisoning. The organisms thus removed certainly were not of so infectious a nature as to localize as such in other surroundings, there to set up their virulent activities. The writer believes that in such cases a low grade poisoning of albumoses is established and that activity of antibody production is so hindered as to permit dileterious bodily influences to work havoc without any direct infection

spreading from the original sources of disease, and also that the presence of low grade organisms elsewhere might thereby be stimulated into greater activity. This toxemia being removed allows the bodily functions to return to normal and the disappearance of arthritic symptoms might readily be expected to follow.

A sequential disease should be traced to its proper source in a thoroughly scientific manner before pronouncing a final diagnosis and great reluctance should be expressed in the making of any prognosis.

It should also be determined as to which of the two infections were first present. The synchronous existence of two disturbances does in no way prove that one was dependent on the other; they may both or either one have been caused by a third bacterial toxin and may, therefore, be entirely independent occurrences. We should not lose sight of the fact in considering etiologic factors of disease and, in fact, disease itself that there are two factors always to be considered, namely, the agency producing disease and of equal importance the fight which the organism puts up to prevent disease and to return to a healthy state.

The peculiar influences connected with the later theories as expressed by Miller and Lusk regarding the interdependency and stimulating effect of one infection upon another regardless of the fact whether the bacteria in the two conditions be of the same variety or not is another matter which we must not lose sight of. We are all seeking the truth and that can only be obtained by true scientific study, entirely unbiased by prevailing opinion.

There is no question in the writer's mind that dental infection may at times be harmful, but diagnosis and prognosis should always be based on a much more scientific study than the mere casual examination of x-ray films. The constitutional condition is of paramount importance and if any doubt exists the patient's general health is always to be considered of prime importance. Never should we lose sight of the fact that the local diseased condition may have a greater or lesser bearing on the constitutional disturbances nor that the opposite, namely, that constitutional derangement may have great bearing on a disturbed oral local condition. Thus the dentist and medical men are forced to consider carefully the relation between local and constitutional conditions and no empirical ruling can be laid down for either to follow. Again we cannot even base our opinions entirely on conditions found to be present for it surely will make a great difference in treatment if the cases be associated or not with faulty methods of living, lowering resistance by such habits as alcoholism or by faulty nutrition, lactation or sennility or the use of drugs such as mercury or potassium iodide. In such cases oral filth conditions are certainly a great menace, so that everything having bearing on the case in hand should be carefully weighed and considered.. Patients may have latent infections which are more prominently brought out by the co-existence of organisms of an entirely different bacterial (possibly oral) nature and the reverse. Latent, quiescent oral infections may be called into great activity by the presence of other bodily infections even of a mild nature and produced by entirely different bacteria. Other writers, particularly those who confine their work more or less to the study of tuberculosis, have frequently emphasized the fact that latent tuberculosis has become active and rapidly progressive after attacks of influenza (W. Duke), tonsillitis, measles, pneumonia or other (possibly dental) acute infections. Osler stated in his early writings that congenital syphilis or tuberculosis may be lighted up into activity by vaccination against smallpox. Duke cites many cases in which he has observed varied examples of latent and chronic infections becoming acute and severe after an attack of acute infections of an entirely different nature. Of course, these findings work both ways; it is often a question which one of the co-existing infections has the stimulating effect upon the other. Oral sepsis may have an important bearing on tuberculosis and the eradication of oral infection may be of material value in arresting the disease. Surely we all realize the interdependency often noted in simultaneous tonsillar and oral infections. The writer has seen cases of pyorrhea long under careful treatment without apparent improvement suddenly clear up after a tonsillectomy. There are many angles to this question; therefore, great care and study must accompany our efforts at diagnosis, prognosis or treatment and an open mind on this question is at present indicated and conservative thought is advisable.

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FEBRUARY, 1920

Editorial

THE MEDICAL PROFESSION AND THE CONSTITUTIONAL CONVENTION

What is the medical profession doing in order to safeguard its interests while the organic law of the State of Illinois is being written?

A few days ago a petition of the central health committee asking that the new constitution guarantee the right to do all kinds of healing was presented to the convention and was referred to the committee on bill of rights.

We understand that representatives of all sorts of cults and isms in Springfield are constantly seeking to influence members to help bring about special concessions for cults to practice medicine not guaranteed them under present law.

It behooves the medical profession to get busy at once and be properly represented throughout the session in order that the health of the community may be properly safeguarded.

IS THE A. M. A. DOING ITS DUTY TO HELP SOLVE THE COMPULSORY HEALTH INSURANCE PROBLEM?

MICHIGAN STATE MEDICAL SOCIETY

COMMITTEE CIVIC AND INDUSTRIAL RELATIONS
OFFICE OF CHAIRMAN

706 Woodward Avenue, Detroit, Mich.
Health Insurance Committee,
Illinois State Medical Society,
Chicago, Illinois.

Gentlemen: In my judgment, the pamphlet issued by you, containing the articles by Drs. Ochsner, Whalen, Ballinger, Fairhall and M. L. Harris is one of the very best that has come to my table. The subject of compulsory health insurance is discussed so fairly, so dispassionately and so intelligently from so many angles that it cannot help be of interest to every reader.

Frankly, I am a novice in the study of compulsory medical insurance and in what for use of a better term might be called "Medical Politics." On taking the chairmanship, I wrote to the Council on Health and Public Instruction, A. M. A. Pamphlets by Drs. Lambert and Rubinow were sent me. I looked up the authorities and found that Dr. Rubinow, an avowed advocate of compulsory insurance for over fifteen years, had been appointed executive secretary of a committee which was to study the subject impartially—then I found that the president of the A. M. A., Dr. Lambert, was also an avowed apostle of compulsory insurance and was fighting his home society (N. Y.) in favor of the Association for Labor Legisation.

Do you wonder, that I am puzzled and that we find that many men think that the A. M. A. is behind the whole plan. The men in the vari-

ous states are spending time, money and effort, while the headquarters are where? Please understand that I am not writing in any spirit of criticism. I have no personal feeling in the matter. I have been given a duty to perform. As I see that duty it is to get information to the members of the fraternity in Michigan. If the A. M. A. send out Dr. Rubinow and Dr. Lambert's stuff as official, it is my duty to advise the members how biased or fair these authorities are.

Can you explain this apparent parodox to me? Will the incoming president represent the full brotherhood of the A. M. A. or is he to "use his own judgment." It makes the fight in every state so complicated and so hard, whereas if a united front could be presented for or against, it would be so much better.

I have written Dr. F. R. Green, secretary of the Council on Health and Public Instruction, as to the position taken by Dr. Rubinow and Dr. Lambert and on the character of the pamphlets being sent out by the council. I trust he will be able to enlighten me.

Dr. Stanton of Schenectady has taken up this question in no uncertain way and I feel that he should be backed up. We are entitled to know where the officials of the A. M. A. stand—we are entitled to criticize the character of the documents sent out bearing the official stamp. The Schenectady County Medical Society has done much good in bringing this point to issue.

I am very much obliged to you for your courtesy and I shall be very glad indeed to receive any suggestions and advice.

Sincerely yours,

GEORGE E. FROTHINGHAM, M.D.,
Chairman of the Committee.

ANOTHER PROTEST OF THE SAME SORT AS THE ABOVE.

DECEPTIVE HEALTH INSURANCE PROPAGANDA

To the Health Insurance Committee of the Illinois State Medical Society.

Gentlemen: No problem affecting the medical profession at the present time is of more vital importance than the subject of compulsory health insurance. It surely should be one of the functions of the American Medical Association to investigate in a scientifically impartial manner all phases of this subject as it relates both to the public and to the medical profession, and to distribute this impartially ascertained knowledge to at least the members of the American Medical Association.

The Committee on Public Information of the Medical Society of the County of Schenectady on Social Insurance being issued by the Council on Health and Public Instruction of the American Medical Association. In the opinion of our committee these publications are more in the nature of propaganda for compulsory health insurance than scientific studies of the subject. In fact, our secretary could compile most of the statements presented in these pamphlets from the propaganda issued by the organization styling itself the American Association for Labor Legislation. As scientific documents we are forced to consider them as far beneath the dignity of a great organization like the American Medical Association.

Several of the pamphlets issued by the council are in the name of Dr. I. M. Rubinow, formerly executive secretary of the Social Insurance Committee of the American Medical Association. Dr. Rubinow's past and present activities have been such as to lead us to question as to whether he was, either by training, temperament or volition, qualified to act as an impartial investigator for any committee supposed to be studying the subject of compulsory health insurance. In our opinion, his appointment was, of itself, little short of a breach of good faith on the part of whoever was responsible.

Bulletin V, we believe, is a typical example of the pamphlets we refer to. This pamphlet represents the secretary's very best efforts for the "cause which he has the good fortune to represent" (page 1, line 7) and it is surely propaganda for the "25,000,000" (page 23) when he feels called upon to reach, but when did the American Medical Association decide to propagandize for the "cause" of compulsory health insurance? As scientific documents these pamphlets fail to even mention the fact that there may be some very real reason why, aside from the poverty of insurable risks, sickness insurance has always remained a weak sister in the insurance family. Also there are some real reasons why the great majority of the medical profession of this country are convinced that compulsory health insurance is a

social "gold brick" of a very dangerous type. If the researches of this committee have not yet led to the discovery of these shortcomings it might be well for them to investigate this phase of the question.

Dr. Rubinow is not at present serving with the committee, but the report for 1919 shows no evidence of improvement.

From time to time our committee will call your attention more in detail to the character of those reports. In the meantime we ask you to obtain and read these reports critically, not only for the information and lack of information they contain, but with the idea of determining their character as supposedly impartial studies of and statements concerning the subject of compulsory health insurance.

Very sincerely,

Chairman of Committee on Public Information
Schenectady County Medical Society.

Sign with Committee on Social or Health Insurance of the Illinois State Medical Society.

Ed. H. Ochsner,	Joseph Fairhall,
George Appelbach,	J. R. Ballinger,
C. A. Hercules,	E. W. Fiegenbaum,
H. F. Bruning,	W. D. Chapman.

NO LEGAL RIGHT TO EXAMINE VENEREAL SUSPECTS

In connection with the detention of persons suspected of having venereal disease an opinion of the Supreme Court of Iowa is of the utmost importance:

One Wragg was arrested charged with lewdness. Bail was fixed, subject, however, to the order of the local board of health, which board subsequently issued an order detaining the accused until it could be ascertained whether he was afflicted with a venereal disease. Wragg then sued out a writ of habeas corpus for his release. The stipulated facts showed that petitioner would be compelled to permit an expert to extract approximately 5 cubic centimeters of blood from petitioner's veins to determine whether he was afflicted with syphilis, such test being known as the "Wassermann reaction," and that the petitioner would be further restrained if the expert should report a positive reaction.

The Supreme Court of Iowa, in an opinion by Judge Weaver in Wragg *v.* Griffin (170 Northwestern Reporter, 400), after determining that neither under the statute law nor under the rules of the board of health could a person merely suspected of having a venereal disease be compelled to submit to such an examination, says: "Even when charged with the gravest of crimes, one cannot be compelled to give evidence against himself, nor can the state compel him to submit to a medical or surgical examination, the result of which may tend to convict him of a public offense; and, if there be any good reason why the same objections are not available in a proceeding which may subject him to ignominious restraint and public ostracism, it is at least a safe and salutary proposition to hold that, before the courts will uphold such an exercise of power, it must be authorized by a clear and definite expression of the legislative will."

The writ was therefore sustained.

IS THE NURSE JEOPARDIZING THE PUBLIC HEALTH SERVICE?

Are School Nurses Not Practicing Medicine Within the Meaning of the Law?

A conviction quite universally prevails that the increasing tendency to over-emphasize the importance of the public health nurse in public health service is rapidly precipitating a situation which not only will prove intolerable but will be the means of giving public health work a serious setback.

Between the women's clubs, the Red Cross, child welfare and other extra-governmental health agencies, as well as some well-meaning but shortsighted public health authorities, the nurses have been lauded and cajoled to such an extent that they not only feel that they are an indispensable factor in public health service, but that they are really the whole thing and that the service would be much better off if the physicians would withdraw and leave the field to them.

In witness of this statement note the attitude of certain nurses who are engaged in public school inspection work. In some instances they stoutly refuse to admit the necessity of a "supplementary" medical service, maintaining that they are fully as competent, if not more so, than physicians to make diagnosis, not only of communicable affections but also of physical defects. In this connection the Health Department program issued by the nursing service of the Springfield schools, published below, (which is typical of many we have seen) is confirmatory.

We hold that school medical inspection service maintained only with a force of nurses, no matter how competent, is less than one-half efficient. To maintain such a service without physicians is about as absurd as trying to run a hospital without medical attendance. It implies, further-

more, that the nurse is extending an authority of her license if not actually violating the law regulating the practice of medicine.

As we see it, the one thing which has done more than all else to emphasize the importance of the nurse is the fact that she is willing to give her whole time to the service and does so at a lesser cost to the community than the services of a physician could be obtained.

In this connection the important thing to remember is (a) to emphasize the inefficiency of any public health service dependent wholly or chiefly upon a nursing force; (b) urge less clamor for public health nurses and more attention to the demand for a full time medical health officer service; (c) the closest co-ordination of all public health nursing services with the constituted health authorities and the strictest supervision of such service by such authorities.

No extra-governmental body organized for engaging in public health work, which is the rightful function of State or municipality, should be permitted to engage in such work excepting and under the supervision of the only legally constituted authorities. There should be a law to this effect.

Again, it may be emphasized that the calling off of so large a body of nurses into the public health field not only deprives the hospitals and the sick in homes of necessary nursing attendance but also tends to increase the cost of nursing service to a point that is prohibitive excepting to the rich. Salaries paid to nurses in the Red Cross public nursing exceeds the income which any nurse steadily employed in nursing the sick can now command. The Red Cross is also disrupting municipal public health nursing service by reason of the higher salaries it is paying nurses in its service.

The tendency of nurses to unionize has lately become apparent in Chicago. Instead of affiliating with the professional group, we understand the matter is still under discussion whether they shall affiliate with the Federation of Labor or not. It is argued that they have been forced to this through the uncertainty of their employment occasioned by the fight between the factions in the Board of Education and the failure of the Chicago City Council to allow them adequate compensation.

THE HEALTH DEPARTMENT OF THE SPRINGFIELD PUBLIC SCHOOLS

That the nurse be carefully chosen, active, cheerful, tactful and especially adept in appealing to school children is important. That she understands the laws governing contagious and infectious cases; and that she be well prepared to judge the symptoms of contagion and the physical defects most obvious, is equally essential; and last, but not least, she must understand and be able to fit into this greatest of organizations, the American Public School.

Each nurse is given a definite program of schools, and the ideal condition is to make as few changes in her districts as possible. This gives each nurse an opportunity to know her children and to follow up her cases where definite corrective work is needed. It gives her the added opportunity of getting into the homes and of coming into close touch with the mothers.

The work of the school nurse has three main objects:

1. To discover contagious cases and exclude them from school, making every effort to find the source of infection, thereby protecting the school and community.
2. To discover physical defects that tend to impair the health and future happiness of the child.
3. To advise both children and parents of the necessity of the correction of physical defects during childhood.

In order to discover contagion in a school the nurse makes a routine or general inspection of the children. She proceeds in the following manner:

Enters schoolroom and announces to teacher her object. Instructs children to roll up sleeves and unfasten neck of clothing.

Inspects throats, notes hands for peeling, neck and arms for appearance of rash. In event she finds case suspicious of contagion, child sent from room to office where nurse makes careful investigation and final decision. If a child is suspected of contagion, he is excluded from school and Board of Health notified at once. If he seems ill, but shows no symptoms of contagion, he is sent home to return when he is well.

NATIONAL ANAESTHESIA RESEARCH SOCIETY.

Announcement is made of the launching of the National Anæsthesia Research Society, with the avowed purpose of collecting data and prosecuting original research in this field of medicine. The objects of the Society as set forth in the constitution are:

To promote the science of anæsthesia and to enable its members, after first having obtained the approval of the Society, to submit without prejudice to the dental and medical professions, any views, findings, or ac-

complishments they have attained; to obtain from all available sources such information as is now extant concerning any material, liquid or gas, known to have anæsthetic properties; to arrange, in co-operation with dental, medical and anæsthesia associations for the preparation and delivery of suitable interesting and educational papers on the general subject, or relative to some particular anæsthetic; to use influence to prevent the publication or circulation of any false or unauthentic statements concerning any and all conditions, symptoms, or phenomena prevailing during or after anæsthesia by any anæsthetic, and to prepare and distribute on request, forms on which such information can be tabulated with uniformity; to distribute by pamphlet or publication, as its funds may permit, and its governing powers authorize, such reliable data as it may collect or obtain through its members or others interested in the subject of anæsthesia, for use by the medical and dental professions; to co-operate with state authorities and other bodies in the preparation of suitable legislation to safeguard those to whom anæsthetics are administered as well as those called upon to administer them; to use its influence in every way and to give its aid toward the advancement of the Science of Anæsthesia.

The Research Committee which will have supervision of original work and the editing of material designed for the profession and professional press, is headed by F. H. McMechan, A. M., M. D., of Avon Lake, Ohio, editor of the Quarterly Supplement of the American Year Book of Anæsthesia and Analgesia. W. I. Jones, D.D.S., president of the Inter-State Anæsthetists' Association, will have an active part in the committee's work. Representative anæsthetists of the country, who have distinguished themselves by research and progress in their field, are being invited to join the committee.

The Society has been endowed with limited funds which will permit it to demonstrate that there is a field of usefulness for it.

REGULATIONS ON PRESCRIBING OF LIQUOR

New Internal Revenue Regulations Governing Filling of Wine and Whiskey Prescriptions, Limits Them to Those Who Are Stricken Sick and Can Prove It

[Public—No. 66—66th Congress.]

[H. R. 6810.]

An Act To prohibit intoxicating beverages, and to regulate the manufacture, production, use and sale of high-proof spirits for other than beverage purposes, and to insure an ample supply of alcohol and promote its use in scientific research and in the development of fuel, dye, and other lawful industries.

Daniel C. Roper,
Commissioner of Internal Revenue.

Strict Limitation as to Prescriptions

Physicians may prescribe wines and liquors, for internal use, or alcohol, for external use, but in every such case each prescription shall be in duplicate, and both copies be signed in the physician's handwriting.

No one but a physician holding a permit to prescribe liquor shall issue any prescription for liquor. And no physician shall prescribe liquor unless after careful physical examination of the person for whose use such prescription is sought, or if such examination is found impracticable, then upon the best information obtainable, he in good faith believes that the use of such liquor as a medicine by such person is necessary and will afford relief to him from some known ailment. Not more than a pint of spirituous liquor to be taken internally shall be prescribed for use by the same person within any period of ten days and no prescription shall be filled more than once. Any pharmacist filling a prescription shall at the time indorse upon it over his own signature the word "canceled," together with the date when the liquor was delivered, and then make the same a part of the record that he is required to keep as herein provided.

Every physician who issues a prescription for liquor shall keep a record, alphabetically arranged in a book prescribed by the commissioner, which shall show the date of issue, amount prescribed, to whom issued, the purpose or ailment for which it is to be used and directions for use, stating the amount and frequency of the dose.

The commissioner shall cause to be printed blanks for the prescriptions herein required, and he shall furnish the same, free of cost, to physicians holding permits to prescribe. The prescription blanks shall be printed in book form and shall be numbered consecutively from one to one hundred, and each book shall be given a number, and the stubs in each book shall carry the same numbers and be copies of the prescriptions. The books containing such stubs shall be returned to the commissioner when the prescription blanks have been used, or sooner, if directed by the commissioner. All unused, mutilated, or defaced blanks shall be returned with the book. No physician shall prescribe and no pharmacist shall fill any prescription for liquor except on blanks so provided, except in cases of emergency, in which event a record and report shall be made and kept as in other cases.

Physicians may also obtain permits entitling them to procure not more than six quarts of distilled spirits, wines, or certain alcoholic preparations, during any calendar year, for administration to their patients in emergency cases, where delay in procuring liquor on a prescription through a pharmacist might have serious consequence to the patient.

Hospitals Have Authority

Provision also is made in regulations for issuing permits to hospitals and sanatoriums to enable them

tc procure intoxicating liquor to be administered for medicinal purposes to patients at such institutions, and also for issuing permits to manufacturing, industrial, and other establishments maintaining first aid stations, authorizing them to procure such liquor for administration to their employes for medicinal purposes in emergency cases.

NOTE: That up to the time of going to press these special prescription blanks had not been received at the office of the Internal Revenue Department in Chicago, although they have been expecting them every day for some time. Until they arrive the Doctor is permitted to use his own prescription blanks making the prescription out in duplicate.

ARISTOCRACY IN MEDICINE

Wm. J. Mayo, in his presidential address at the annual meeting of the American College of Surgeons at New York City last October, sounded a warning concerning the future status of surgery, that may or may not interest the medical profession as a whole. In discussing the subject of medical education and especially the educational requirements for future admission to fellowship in the College of Surgeons—graduation from a reputable medical college, hospital training, state license, and special training (three years) in a special field of surgery—Dr. Mayo asks the following question: "Will not this have a tendency to make the surgeon a member of an aristocracy to the ranks of which the sons of rich men will be the only ones who will have easy entrance?"

The boy entering the grade school at seven years of age may complete his medical education, with a year of hospital internship, at the age of twenty-six. And three years of special training added to this will make him twenty-nine. Eight years of his majority must be spent in preparation for his life work in order to meet the standard of requirements for recognition by the College of Surgeons. Eight years of the average man's time is no small investment, but add to this the fees and cost of maintenance for eight years and few men will see in surgery, even with most flattering reports of its financial possibilities, a very sure or safe investment. It does seem that only the sons of rich men will "have easy entrance" into this most desirable fold.

The same conditions may as readily be applied to medicine even without the additional three years of special preparation. The investment of time and money now required of the student in medicine is not justified by the average income of general practitioners. Many of those who are attracted by other things in medicine than its financial possibilities are seeking the short cuts, are associating themselves with the various cults or substitutes for real physicians. The process of raising the educational requirement for the practice of medicine has had a selective action upon the prospective candidates for medical degrees.

We have been creating an aristocracy in medicine for some time past. Only those who are induced by love of scientific pursuit or those who have ample financial backing find any attraction in the study of medicine now.

But it is not alone the educational requirement that is making an aristocracy of medicine, it is also the gradually increasing requirements for efficient practice—the equipment and the technical assistants that are now regarded as essential. No man, who has not an unusually large and lucrative practice or an independent income, can afford to equip his office for a thorough and complete examination. The average practitioner is forced to adopt the most primitive form of group practice. He sends his patient to the roentgenologist, the dentist, the oculist, the rhinologist, the neurologist, and sends his specimens to the nearest laboratory. Out of such a system, however, more intimate group formations will evolve with complete equipment, specialists, and technical assistants for each group.

The members of such a group and the members of the staffs of hospitals where such facilities are available, are men of middle rank, for the true medical aristocrat is he who can afford and does possess all of these facilities for himself. He occupies the position to which we all aspire and which is accorded the greatest respect by the people.

In every group there must be one who leads and directs—finally dictates and then his associates become only helpers or assistants. So that the group will resolve itself into a leader and his followers and ultimately into the proprietor and his assistants and dependents.—J. K. M. S., Jan. 1920.

THE BLOOD PRESSURE VOGUE

BY D. NATHAN, M. D.,
Captain, Canadian Army Medical Corps
NORRISTOWN, PA.

From the ponderous apparatus of Ludwig or Erlanger to the spring instruments of watch charm dimensions, from the seclusion of the physiological laboratories to the kit bag of the local physician, blood pressure machines have evolved and the finished product is now as much in evidence as are the reagents for making the simplest urinalysis, in the doctor's office.

That blood pressure is an aid in diagnosis is common ground, that high blood pressure has the significance given it by the general practitioner is debatable. Even if the instruments as yet perfected were infallible as a guide to exact blood pressure, there are still several factors to be reckoned with, e. g., local arterial conditions, local increased peripheral resistance, where the reading would not measure anything but the pressure of the blood stream passing through the vessel occluded by the cuff, besides a correct interpretation of the pathological condition responsible.

Again, the blood pressure taken from an artery direct differs from that taken with a cuff. This latter method, however, can be safely used as bearing upon actual pressure of the blood and when the figure is high or low we can be satisfied that the blood pressure is high or low. In the heart hospitals in England less

account was taken of the blood pressure than of other clinical factors, and with as good results, I think. The forms later adopted by the Canadian Medical Board required taking the blood pressure when the pulse exceeded 90, and of course the faster the heart beats, other factors upon which blood pressure depends remaining the same, the blood pressure will rise correspondingly. I can say this, that in the examination of thousands of men, many of whom had spent most of four years in the trenches, high blood pressure was of little importance. Among these were cases of disordered action of the heart with blood pressure varying in many cases above normal. Few men complained, many cases being discovered by the medical officer examining. Fortunately the battalion medical officer did not carry a sphygmomanometer which he could flash upon every Tommy on sick parade, else we would have had the high blood pressure neurosis to cope with.

It is unnecessary for me to go into the significance of variations from what has been accepted as a standard of normal blood pressure. I will say this, however, that very low blood pressure is always more dangerous than very high blood pressure, the former being evident without the use of a sphygmomanometer and suggesting treatment with better results. Of course it is possible to reduce high blood pressure temporarily, whether it is the result of chronic nephritis or of the idiopathic variety. The electrical manufacturers know and tell the physician all about this high blood pressure. The drug manufacturers make pills for the purpose. They also know how to cure it. If they did not know one might use some depressant in poisonous doses, say aconite, or do as I have seen done in enteric fever in order to reduce temperature, paint the patient with guaiacol and then cover the part with oil silk. Fall of temperature and blood pressure were concomitant with dissolution.

Blood pressure is something with which we are all afflicted; having no blood pressure, like an acid condition of the tissues, is incompatible with life. The object of this article is to obviate if possible the further development of a class of psychasthenics with obsessions of high blood pressure. I have had several of these latter and the mental condition induced by their concentration on the state of their blood pressure made them, even to a professional consoler, hard cases to handle. The doctor who diagnoses aloud the disease high blood pressure can rest assured that that patient will soon bestow his patronage upon some other physician, charlatan, or other of their ilk. —N. Y. M. J., 617 West Main Street.

FIGURING THE DOCTOR'S INCOME TAX

BUREAU OF INTERNAL REVENUE,
WASHINGTON, D. C.

Professional men are asking just now how they should figure Income Tax. The following article is prepared to meet this demand for information.

RETURNS FOR 1919

The present Income Tax law requires that returns for 1919 be filed on or before March 15th, 1920, at the office of the Collector of Internal Revenue for the district in which the taxpayer lives. At least one-quarter of the tax due must accompany the return.

An unmarried person must file a return if his or her net income was $1,000 or over; and a married person living with wife (or husband) must file if their joint net income was $2,000, or over. A widow or widower, or a married person living apart from wife (or husband) is classed as a single person.

The requirement to file a Federal Income Tax return is not contingent upon there being a tax due.

Form 1040A is used for net income of not more than $5,000. Form 1040 for net income over $5,000. Instructions and a working sheet accompany each return form.

Every firm of professional men operating as a corporation must make an annual return of net income on Form 1120; if operating as a partnership, a return on Form 1065 must be filed.

Gross Income. An individual's gross income from a profession includes all compensation for his services.

Where services are paid for with something other than money, the fair market value of the thing taken in payment is the amount to be included as income. If the services were rendered at a stipulated price, in the absence of evidence to the contrary such price will be presumed to be the fair value of the compensation received.

In the case of a salary received, this should be shown separately, in Block B, of the return. Many professional men and women—lawyers, medical examiners, teachers, accountants, etc.—are officers or employees of a State, or a political subdivision of a State, such as city, town or county. Their salaries or wages as such officers or employees is exempt from the Federal Income Tax. The exemption also applies to fees received by notaries' public commissioned by States, also the commissions of receivers appointed by State courts.

As to fees for services to clients, patients, etc., these should be included in the gross income for the taxable year in which received, unless they are included when they accrue to him in accordance with an approved method of accounting followed by him.

Cash Basis. A professional man may make his return on the basis of cash intake and actual expenditures for the year. It should be noted here that a taxpayer is deemed to have received income which has been credited to or set apart for him without restriction.

Accrual Basis. A more exact and equitable method of figuring net income is on the "accrual basis." This means a computation on the basis of income earned and expenses incurred, whether paid or not, that actually pertain to the taxable year, excluding income earned and expenses incurred in previous or succeeding years. A professional man who keeps books of

account should make returns by this method, if his accounting method is one generally employed, and shows a correct net income.

Deductions. A professional man may claim as deductions the cost of supplies used by him in the practice of his profession, expenses paid in the operation and repair of an automobile used in making professional calls, dues to professional societies and subscriptions to professional journals, the rent paid for office rooms, the expense of the fuel, light, water, telephone, etc., used in such offices, and the hire of office assistants. Amounts expended for books, furniture and professional instruments and equipment of a permanent character are not allowable as deductions.

In the deductions from gross income, the law specifically bars personal living or family expenses.

In the case of a professional man who has a regular place of business and who rents a residence, but incidentally receives there clients, patients or callers in connection with his professional work, no part of the rent at his home is deductible. If, however, he uses part of the house for his office, such portion of the rent as is properly attributable to such office is deductible.

Bad Debts. The uncollectible bills of professional men, particularly doctors, dentists and lawyers, have a very important bearing on the net earnings for each year. The principal point in connection with such accounts made in Income Tax procedure is that there can be no allowance for such bad debts in returns figured on the "cash basis." That is, a person who has been making his annual returns on the basis of cash received and actual cash expenditures each year has never shown as income his accounts with patients or clients, and is, therefore, not entitled to take them out of income.

On the other hand, a person who annually figured his gross income on the "accrual basis," that is, included his cash receipts and charges against patients and clients for all of his services performed during each year, is entitled to a deduction for "bad debts" covering such accounts as he ascertained during the year were uncollectible and charged off on his books.

An account merely written down or a debt known to be worthless prior to the beginning of the taxable year is not a proper item for deduction.

Wear and Tear.—A reasonable allowance for the wear and tear and obsolescence of such instruments and equipment, etc., is allowed. The proper allowance is that amount which should be set aside for the taxable year in accordance with a consistent plan by which the total of such amounts for the useful life of the property will suffice, with the salvage or scrap value, at the end of such useful life, to provide in place of the property its cost or its value as of March 1, 1913, if acquired by the taxpayer before that date.

Obsolescence.—When through some new invention or radical change in methods, or similar circumstance the usefulness in his profession of some or all of his instruments or other equipment is suddenly terminated, so that he discards such assets permanently from use, he may claim as a loss in that year the difference between the cost (reduced by reasonable adjustment for wear and tear, which it has undergone; and its junk or salvage value. If the apparatus was owned prior to March 1, 1913, its fair market value on that date should be considered, instead of its cost, in figuring obsolescence. This deduction is allowed by law, but the taxpayer must be able to substantiate any claim made on this basis.

THE TOXICITY OF WOOD ALCOHOL.

Acute Poisoning. Symptoms are similar to those of poisoning from ethyl alcohol, only they come on more slowly and are more prolonged. For instance: coma, caused by methyl alcohol, commonly lasts two to four days, while that resulting from excess of ethyl alcohol rarely lasts over six hours. Methyl alcohol produces marked fall of body temperature, and marked changes in the alimentary tract with intestinal hemorrhages, and vomiting of blood is frequent. Convulsions may occur and last for a day or two, ending in loss of sensation and most reflex movements. Convulsive movements of the eye are often very noticeable. Very few of the cases of acute intoxication recover and in those that do, blindness is a common result, owing to degenerative changes in the retina.

Chronic Poisoning. While a single dose of methyl alcohol is no more toxic to one of the lower animals than an equal quantity of ethyl alcohol, small doses of the former, given every other day, are fatal in all cases within a few weeks. This, notwithstanding the fact that doses of ethyl, or isobutyl, or amyl (fusil oil) alcohol, in doses sufficient to cause intoxication, can be given to such animals for months without harmful results. In animals dead from chronic methyl alcohol poisoning extensive fatty change of the liver has been uniformly found.

The idea has been prevalent in some quarters that methyl alcohol owes its chief poisonous effect to the action of impurities contained. That this is an error, has been proved by many authorities. Hunt—Johns Hopkins Hospital Bulletin, August, 1902, says in reference to such impurities: "While the toxicity of the preparation may be considerably increased by them, methyl alcohol is still the chief toxic agent."

To test the effects of methyl alcohol upon the eye, Birch-Hirschfeld experimented upon monkeys with the following results:

Pure methyl alcohol, diluted with several times its bulk of water, was given to three monkeys, in doses of from three to seven cubic centimeters, every one or two days. One monkey received 28 c.c. of methyl alcohol over a period of 8 days; one 79 c.c. over a period of 15 days; the other 56 c.c. over a period of 11 days. The animals were killed when it was evident that death was approaching (at the end of the periods given) and their eyes studied microscopically. Two of the monkeys had marked degenerative changes in the retina and one was totally blind. Similar changes were found

in the eyes of three dogs, poisoned by methyl alcohol, although no disturbances of vision could be detected during life.

An explanation of the toxic action of methyl alcohol may be deduced from the fact that the urine of men and animals, for days after its administration, contains considerable quantities of formic acid, a markedly poisonous substance. This acid results from the incomplete oxidation of methyl alcohol, and is excreted very slowly from the animal body, thus readily producing cumulative effects and chronic disease.

In the cases of the six deaths from acute poisoning by methyl alcohol in whiskey taken in bar rooms of this city, previously alluded to, all were seized with violent symptoms soon after taking the adulterated drink. These were violent abdominal pains, incessant vomiting, and extreme weakness. Three of the patients complained of blindness, and three came to the hospital in coma.

The main symptom of chronic methyl alcohol poisoning is disturbance of vision and blindness.

Treatment: The treatment of acute methyl alcohol poisoning is thus given by Gettler and St. George. (*J. A. M. A.*, January 19, 1918):

"The treatment, to be at all efficacious, must be promptly instituted, and consists essentially of ridding the body of the poison, and supportive measures. . . . For a considerable period of time, the alcohol excreted and re-excreted, unchanged into the stomach and intestine, and it is, therefore, important that early and frequent gastric and rectal lavage be carried out. . . . Intravenous saline or sodium bicarbonate infusions and phlebotomy and transfusions, if the latter can be had quickly, should be administered. In addition, warmth and strong stimulation with strychnin, digitalis, caffein, camphor, epinephrin and oxygen must be given.

Correspondence

MIDWIFE PRACTICE — AN ANACHRONISM.

To the Editor: Dr. Clara P. Seippel, in commenting upon Dr. Holmes' article which appeared in the January number of the JOURNAL, says: Not only the medical profession, but every intelligent layman will agree with him; his conclusion should be endorsed by every organization working for the public welfare.

About fifteen thousand women die annually from diseases incident to pregnancy and confinement, we are told in a bulletin on Maternal Mortality written by Dr. Grace L. Meigs and issued by the Children's Bureau. More than half of these fatalities result from conditions which are mostly recognizable during gestation—frequently in the early months; therefore, a very large percentage of such deaths are avoidable. The infant mortality is practically one hundred per cent; so that if 8,000 mothers die we can assume that 16,000 lives are lost annually in this way, of which—we have no hesitancy in saying—12,000 at least might have been spared had the mother had the scientific care and supervision which are now taught in all medical colleges.

The midwife is not conversant with the early symptoms of toxemia; she does not recognize genital infections, placenta prævia, or pelvic obstructions and deformities. However early she may be engaged for a case she can only preside at the crucial moment and that is all that is expected of her.

The other 7,000 deaths follow puerperal septicemia. In hospital practice, according to DeLee, Williams and other authorities, the deaths from this cause have fallen much below one per cent. We may justifiably conclude therefore, that the majority of these women are confined in their homes. It would be interesting to ascertain how many of them are delivered by physicians and what number by midwives. There are, of course, many more cases of infection—patients who recover after several months (sometimes never completely)—and though there is no record of them, they must not be lost sight of in the reckoning.

Approximately 2,500,000 babies are added to our population each year. Perhaps fully half of them are born at home and a million and a quarter mothers, fifty per cent., were probably attended by midwives. We know that many an infant dies in the first few weeks of life because of inattention to the mother's health before its birth; and when such neglect results in her inability to nurse her little one the infant mortality rate takes a big leap. Neither must we forget the army of handicapped bottle-fed babies who survive.

Let us, for the moment, entirely ignore the question of the midwife's ability or inability to conduct a woman safely through the puerperium. The mortality of both women and children due to diseases occurring during pregnancy is so great and the morbidity so serious, that no one should be permitted to assume the rôle of obstetrician who cannot likewise assume the full responsibility for the woman's health and life and those of her child from the time the condition is diagnosed until the event is happily completed.

That it is an economic question of first rank none can dispute. That the care of the expectant mother should become a function of the government we are gradually coming to see.

It was with great pleasure that we read a short time ago the draft of a plank which the leading women's organizations of the country will ask every presidential candidate to put into his platform, the first item of which asks for the granting of federal aid to the states for the adequate care and supervision of the mother before, during and after confinement, the instruction of the hygiene of maternity, infancy, etc.; in short, it endorses the Sheppard Bill.

It is quite the fashion, as we all know, for the leaders in every big public movement to enlist the interest of the women's clubs; they are always told that the particular cause is a woman's work—whether it is or not. But if ever there was a task that was a woman's task, the Prevention of Maternal Mortality is that task. More women can be reached through the women's organizations of this country than in any other way and more quickly than by any other means. Legislation and appropriations may not come for several years, but a public educational campaign can be initiated at once.

We see what public lectures have done to tuberculosis, alcohol and venereal diseases. The venereal disease quack practiced for many years before the laws he violated were enforced; the laity became educated and the danger of the advertising specialist became known, so that his business was no longer tolerated.

The enforcement of the medical practice act would undoubtedly in time eliminate the midwife. Dr. Holmes has pointed out the difficulties surrounding the procedure, to say nothing of the time and money it would consume. Arousing public sentiment will make the law effective. An educational campaign is the most feasible immediate measure. It will not only educate those who employ midwives but thousands of other young prospective and potential mothers. All women will come to learn that it is early, scientific supervision that has robbed maternity of its terrors to a very large degree, and that carries both mother and child safely through in a high percentage of cases.

When we contemplate the shocking fact that in more than twelve years (during which time medical science and teaching have made great advances in the field of obstetrics) the maternal mortality from practically preventable causes has shown no decrease in this country, we should be stirred into masterful activity.

Public Health

THE INFLUENZA EPIDEMIC IN ILLINOIS.

In spite of the optimistic belief on the part of some writers and health authorities that influenza would not recur in epidemic form during the present winter, the disease is now prevalent throughout the northern portion of Illinois and is spreading rapidly through the central portion toward the southern end of the State, As was the case in the epidemic of the winter of 1918-19, the disease made its first serious invasion in the cities along the Lake Shore, north of Chicago, the first cases reported as during the last epidemic being at the Great Lakes Naval Training Station near Waukegan. The Great Lakes Naval Training Station and Camp Grant have suffered severely during the present outbreak, and there are thousands of cases reported in the city of Chicago.

The disease this year appears to be of a very mild type compared with that of last year, with less tendency to complicating pneumonia, less liability to heart disturbance with very brief duration of the fibril period and rapid convalescence. On account of this mild type, a large number of cases are undetected and thousands unreported, so that it appears inevitable that the epidemic will spread throughout the entire State and throughout the entire nation. Studies made under the direction of Dr. E. O. Jordan of the University of Chicago at the Great Lakes Naval Training Station indicate that there is a different bacterial flora in the present epidemic, the Pfeiffer bacillus being more frequently noted than during the epidemic of 1918.

The first reported cases of influenza were received by the Division of Communicable Diseases about January 1st and up to January 24th there had been 17,694 cases in the State outside the city of Chicago. The greatest numbers of cases during the present outbreak were reported about the 14th and 15th of January.

To meet the emergencies which may arise in connection with the influenza epidemic, a very competent medical organization has been created, affording the State Department of Public Health much closer contact with the various sections of the State than was attained during the epidemic of last year. Under authorization of the Surgeon General, the Director of Public Health has appointed one physician in each county to serve as Assistant Collaborating Epidemiologist for the United States Public Health Service. These appointments were tendered by wire and although the service may be arduous in the event of serious epidemic and carries with it a monetary compensation of but $1 per year, acceptances were received within a period of twenty-four hours.

The Assistant Collaborating Epidemiologists are supposed to keep in close touch with the influenza situation in their respective counties and to keep the State Department of Public Health advised of all developments. A communication has been forwarded to all of the health officers in each county instructing them to keep in close touch with the Assistant Epidemiologists so that all of the reports from the county will come to the State Department of Public Health through one channel.

In addition to the Assistant Collaborating Epidemiologists there has been established an Influenza Emergency Medical Corps made up of 125 physicians who have tendered their services in the event of an emergency. The names of these physicians have been transmitted to the United States Public Health Service at Washington and in the event of the local medical personnel proving insufficient to meet an emergency, one or more of these physicians will be delegated for service in such communities in the capacity of Acting Assistant Surgeon of the United States Public Health Service, and receiving compensation on the basis of $200 per month with traveling expenses and an allowance of $4 per diem for subsistence.

If conditions demand, the members of the State and county collaborating health service of the State Department of Public Health will be called upon to meet emergencies, the members of this service having been selected by members of the various county medical societies to represent the State Department of Public Health under conditions when members of the regular staff are unavailable. When not actually engaged in public health work the members of this service are paid by the State on a per diem basis with traveling expenses.

To further meet emergency needs the American Red Cross has made preparations to furnish nurses for community work and also to supply hospital equipment if it be required for emergency hospitals.

That a more intelligent idea of the extent of the epidemic throughout the nation may be obtained, Dr. C. St. Clair Drake, Director of Public Health of Illinois, who is also executive secretary of the Conference of State and Provincial Health Officials, has been delegated to maintain a nationwide clearing house. The state health officials of all states have been requested to furnish Dr. Drake with weekly reports of the progress of the epidemic within their jurisdictions and to communicate any unusual conditions by wire, and this material is utilized for the preparation of a weekly report which is sent to health officials throughout the nation. The first of these reports was issued under date of January 21st and dealt almost altogether with the influenza situation in Illinois.

With the advent of this new epidemic the work of the national committee on respiratory diseases in the testing out of influenza and pneumonia vaccine for prophylactic use has been pushed forward as rapidly as possible. Dr. Jordan, who represents the Committee in Illinois working in connection with the State Department of Public Welfare and the State Department of Public Health, has vaccinated one-half the inmates of several of the large State institutions. While it is hoped that by rigid exclusion of visitors, already ordered, influenza will not invade these institutions this year, a great deal of interest is being centered in case this exclusion is not successful, and to ascertain the extent to which preventive vaccination actually protects the individuals in these institutions.

Extensive studies in industrial establishments and public and parochial schools in the city of Rockford indicate that approximately 20 per cent. of all employes and school children are absent on account of illness and this condition is believed to exist in many other sections of the State, indicating conclusively that the cases of many individuals sufficiently ill to be confined to their homes are not reported to the local health authorities. It has been further ascertained that in many communities physicians are attempting to differentiate between so-called "La Grippe" and influenza, a distinction which cannot be made known by any known diagnostic means and which is not recognized under the rules and regulations of the State Department of Public Health.

Of the 17,694 cases of influenza reported up to and including January 24, the distribution in the several counties of the State is as follows:

Adams	8	Lee	23
Alexander	2	Livingston	88
Bureau	27	Logan	6
Boone	4	Macon	5
Bond	1	Madison	127
Brown	28	Morgan	173
Cass	27	Macoupin	19
Clay	15	Marion	18
Champaign	7	Mason	2
Cook	12,557	McHenry	59
DeKalb	59	McLean	8
DeWitt	1	Moultrie	5
Douglas	1	Ogle	18
DuPage	10	Piatt	3
Edwards	1	Pike	1
Ford	6	Peoria	7
Hancock	1	Rock Island	13
Henry	115	Sangamon	10
Iroquois	18	Stephenson	7
Jefferson	1	St. Clair	69
JoDaviess	6	Shelby	1
Jasper	219	Tazewell	19
Jackson	1	Vermilion	14
Jersey	2	Wayne	2
Kane	61	Winnebago	3,016
Kankakee	11	White	2
Kendall	5	Will	94
Knox	12	Waukegan	5
Lake	645	Whiteside	8
LaSalle	19		
	13,870		3,824
			13,870
Total			17,694

TUBERCULOSIS SURVEY AND CLINICAL CONFERENCE AT ALTON.

During the week ending January 9 nurses and field workers connected with the State Department of Public Health and the Illinois Tuberculosis Association carried on an intensive study of tuberculosis conditions in Alton as the final feature of the general health survey conducted by the State Department of Public Health, at the instance of the Alton Chamber of Commerce and the Alton Welfare Council. This survey ended in an all-day clinical conference held under the auspices of the Madison County Medical Society, the

Madison County Anti-Tuberculosis Society, at which considerably over a hundred persons weer examined.

NEW CLINICS FOR CRIPPLED CHILDREN.

Within the past month additional clinics for crippled children have been established at East St. Louis, Princeton and Galesburg, by the Division of Child Hygiene and Public Health Nursing. At Galesburg and Princeton the financial affairs of the clinics are operated by the local chapters of the American Red Cross.

VENEREAL DISEASE WORK IN EAST ST. LOUIS.

The division of social hygiene of the State Department of Public Health is carrying out an intensive educational campaign in the various industrial plants of East St. Louis. Dr. T. H. Morrison and Dr. Irwin Koll have given lectures on the prevention of venereal diseases to a large number of audiences, these lectures being accompanies by a new two-reel motion picture entitled "The Venereal Menace."

A report of the work done by the East St. Louis Social Hygiene Clinic, which will be issued within a short time, was that there have been examined 609 persons, 432 of whom were found to be venereally infected with one or more diseases. In this group there were 241 persons suffering from syphilis, 169 with gonococcus infection, 7 suffering from balanitis gangrenosa, 36 with chancroid and 2 with other venereal infections. There have been discharged 156 patients, 102 as possibly cured and 54 as noninfectious, but not cured.

The East St. Louis clinic is operated in close connection with the office of Dr. C. W. Lillie, city health commissioner, and under the direction of Dr. Chas. F. W. Wilhelmj, president of the St. Clair County Medical Society.

SMALLPOX THROUGHOUT ILLINOIS.

While smallpox has prevailed to a moderate extent in a considerable number of isolated communities throughout the fall and early winter, the disease is now assuming more serious proportions and is spreading from a number of infected centers. Large numbers of cases are now being reported from Franklin, Gallatin, Greene, Scott and Warren counties.

The division of communicable diseases of the State Department of Public Health has issued a special note of caution to physicians and health officers in those sections in which smallpox is prevalent, calling their attention to the similarity in prodomal symptoms of smallpox and of influenza now prevalent in all sections of the State. In a number of instances cases diagnosed early as influenza and given no further medical attention or observation have later proven to be smallpox cases.

THE COST OF COMMUNICABLE DISEASE IN ILLINOIS.

The annual report of the State Department of Public Health for the fiscal year ending June 30, 1919, which is now in press, contains an interesting table showing the cost of sixteen communicable diseases in dollars and cents to the people of Illinois. This table is particularly interesting since for the first time it emphasizes the financial loss entailed through the influenza-pneumonia epidemic of last year.

In computing the cost of communicable disease, allowance of $3,000 was made for the death of each adult and $500 for the death of each child, and very conservative allowance was made for the cost of nursing and medical care, the cost of burial and the loss of time from productive labor. The total cost of communicable disease for the fiscal year ending June 30, 1918, was shown to be $154,881,000 or a loss of $24.67 for each man, woman and child in the State. For the fiscal year ending June 30, 1919, the total cost was swelled to $223,634,515 or a per capita cost of $35.16.

Influenza is shown to have cost the State $73,710,000 and pneumonia $48,633,000, the cost of pneumonia exceeding the cost of the previous year by about $18,633,795. This excess cost is attributed to the pneumonia complicating influenza, making the total cost of the influenza-pneumonia epidemic $92,343,795. Regardless of the epidemic of last winter, tuberculosis still remains the most costly disease of all, the loss entailed by it during the past fiscal year amounting to $92,723,000, a reduction, incidentally, of $23,000,000 as compared with the cost of tuberculosis for the previous fiscal year. The per capita cost of the influenza-pneumonia epidemic was $11.59, while the per capita cost of tuberculosis was about $12.00.

The total cost for each of the following communicable diseases was:

Typhoid fever	$ 2,585,000
Malaria	1,641,340
Smallpox	278,000
Measles	523,160
Scarlet fever	214,875
Whooping Cough	428,670
Diphtheria	785,925
Influenza	73,710,000
Rabies	5,250
Tuberculosis	92,723,500
Syphilis	157,600
Gonococcus infection	635,200
Epidemic Meningitis	67,350
Poliomyelitis	143,000
Pneumonia	48,633,795
Septic Sore Throat	101,550
Total	$223,634,515

THOMAS G. HULL APPOINTED.

The Director of the State Department of Public Health has announced the appointment under civil service of Thomas G. Hull as Chief of the Division of Research and Biological Laboratories. Mr. Hull is a graduate of Yale University, which conferred upon him the degree of Doctor of Philosophy. He has served with the American Museum of Natural History, with the United States Food Administration, and with the Massachusetts Experiment Station.

During the war he was in the Sanitary Corps of the United States Army, serving as laboratory officer for a hospital center of five base hospitals, and later serologist in the third army laboratory, having charge of the serological procedures for about 200,000 troops.

APPOINTMENT OF DR. SCHUMACHER.

Dr. H. W. Schumacher has been appointed as Medical Assistant in the Division of Child Hygiene and Public Health Nursing of the State Department of Public Health. Dr. Schumacher attended the University of Illinois and is a graduate of the Washington University Medical School of St. Louis, Mo. He served as interne in the Children's Hospital in that city. He was eligible to an additional year's service in the Children's Hospital when he entered the Medical Corps of the United States Army, in which he has been engaged until very recently.

Book Notices

BOOKS RECEIVED.

THE ILLINOIS MEDICAL JOURNAL is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made under this heading; but with this distinct understanding that, while a goodly number and perhaps all of them will be reviewed, the JOURNAL is under no obligation to notice or review any publication received by it which, in the judgment of the editor, will not be of interest to its readers.

THE MEDICAL ASPECTS OF MUSTARD GAS POISONING. By Alfred Scott Warthin and Dr. Carl Vernon Weller, with 156 original illustrations. St. Louis: C. V. Mosby Company, 1919. Price $7.00.

SYPHILIS: A TREATISE ON ETIOLOGY, PATHOLOGY, DIAGNOSIS, PROGNOSIS, PROPHYLAXIS AND TREATMENT. By Henry H. Hazen, A.B., M.D. 160 illustrations, including 16 figures in colors. St. Louis: C. V. Mosby Company, 1919. Price $6.00.

THE SYSTEMATIC DEVELOPMENT OF X-RAY PLATES AND FILMS. By Lehman Wendell. Illustrated. St. Louis: C. V. Mosby Company, 1919. Price $2.00.

THE PRACTIONER'S MANUAL OF VENEREAL DISEASES. With Modern Methods of Diagnosis and Treatment. By A. C. Magian, M.D. St. Louis: C. V. Mosby Company, 1919. Price $3.00.

ANAPHYLAXIS AND ANTI-ANAPHYLAXIS AND THEIR EXPERIMENTAL FOUNDATION. By Dr. A. Besredka. With a Preface by Dr. E. Roux. English Edition by S. Roodhouse Gloyne, M.D. (Leeds), D.P.H. (London). St. Louis: C. V. Mosby Company, 1919. Price $2.25.

FOOD FOR THE SICK AND THE WELL; HOW TO SELECT IT AND HOW TO COOK IT. By Margaret P. Thompson, Registered Nurse. Cloth. ix + 82 Pages. Price $1.00. Yonkers-on-Hudson, New York: World Book Company.

BOOK REVIEWS

We publish full lists of books received, but we feel under no obligation to review them all; however, so far as space permits, we will review those in which we think our readers are likely to be interested.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. Chalmers DaCosta, M. D., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Eighth edition, revised, enlarged and reset. Octavo of 1697 pages, with 1177 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $8.00 net.

The eighth edition of this work has been received. The fact that it is run eight editions speaks volumes in its favor and indicates its popularity. It is a credit to the author even if written under the trying conditions of camp life as stated in the preface. The author states that the newer methods of preventing Tetanus and for treating infection, compound fractures, head injuries and chest injuries are of the very first importance. He still believes that pus of an empyema like pus anywhere else should be evacuated with the utmost promptitude. This work like its predecessors is practical throughout, it has been thoroughly revised and should prove a valuable book of reference. It should be in the library of every Doctor who makes any pretense of practicing surgery.

THE SURGICAL CLINICS OF CHICAGO. Volume III. Number 6 (December 1919). Octavo of 215 pages, 63 illustrations and complete index to volume 3. Philadelphia and London. W. B. Saunders Company, 1919. Published bi-monthly. Price, per year: Paper $10.00; Cloth $14.00.

This number contains the Surgical Clinics of a goodly number of Chicago's well known surgeons. Dr. Arthur Dean Beban presents three clinical cases as follows: Chronic Lung Abscess with Fistula; X-Ray Diagnosis of Gall Stones, and Fibroma of Large Intestines. Daniel A. Orth: Management of Neglected Carcinoma of the Breast. Emmett A. Printy: Cholelithiasis with Chronic Empyema of Gall-Bladder. Daniel N. Eisendrath and Maurice L. Goodkind: Sub-Acute Pancreatitis. Albert J. Ochsner: Transgastric Cauterization of Crater Ulcer on Posterior Wall of Stomach. Alfred A. Strauss: Surgical Treatment of Gastrical Ulcer; Excision of Duodenal Ulcer. Carl Beck: Old Sinus from Hip Disease Treated by Skin sliding; Diverticulum of Urinary Bladder in an Inguinal Hernia; Gangrenous Hernia of the Bladder and Intestine. John R. Harger: Acute Hyperplasia of Thyroids with Dyspnea. Kellogg

Speed: Elephantiasis Nostras. Vernon C. David: Incontinence of the Rectal Sprincter; Rectrovaginal Fistula. Dr. Gatewood: Lacerated Wound of Buttock. Golder McWhorter: Osteomyelitis with Variation in Growth of the Femur following Separation of the Distal Epiphysis. Benjamin F. Davis: Fracture-Dislocation of the Atragalus. William Thomas Harsha: Acromegaly. Thomas J. Watkins: Amenorhrea and Sterility Due to Functional Endocrine Disturbances. Edward Louis Moorehead: Multiple Uterine Fibroids; Secondard Anemia; Nephritis; Epigastric Hernia; Hernia of the Linea Alba; Gunshot Wound of the Buttock.

Wesley J. Woolston and W. B. White, Report of 1000 Patients Operated on for Tubal Infection. Gustav Kollscher and J. S. Eisenstaedt: Lesions of the Female Uretha, Demonstrated in Four Cases. Herman L. Kretchmer, Diagnosis of Ureteral Calculi.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume 3, Number 2 (The New York Number, September 1919). Octavo of 270 pages, 35 illustrations. Philadelphia and London. W. B. Saunders Company, 1919. Published bi-monthly. Price per year: Paper, $12.00; Cloth, $16.00.

This is the New York number. Dr. Warfield T. Longcope, a clinic on Cerebral and Spinal Manifestations of Purpura Haemorrhagica. Dr. Leo Buerger, Cystitis; Discussion regarding its Therapy. Dr. G. R. Pisek, Common Disorders of Childhood. Dr. Herman O. Mosenthal, the Symptoms and Treatment of Retention of Waste Products in Nephritis. Drs. W. W. Herrick and A. M. Dannanberg, recurring Meningococcic Meningitis. Dr. Arthur F. Chase, The Value of Chemical Blood Examinations in Diagnosis, Prognosis, and Treatment of Some Constitutional Conditions. Dr. George Stuart Willis, Radium Therapy. Drs. M. A. Rothschild and A. O. Wilensky, Cholelithiasis. Dr. Morris H. Kahn, Functional Diagnosis of the Heart. Dr. Albert R. Lamb, The Flint Murmur. Dr. A. S. Blumgarten, Vagotonia and Sympathicotonia as Aids in the Diagnosis and Treatment of Endocrine Conditions. Dr. Heinrich F. Wolf, Physical Therapy in Locomotor Ataxia. Dr. I. W. Held, A Discussion on the Splenomegalies.

THE NARCOTIC DRUG PROBLEM, by Ernest S. Bishop, M. D., F. A. C. P. New York. The MacMillan Company, 1920. Price $1.50.

This book is just off the press and is very timely and should help greatly in clarifying the perplexing situation of Drug Addiction. There is no man in the United States or for that matter in the world who has as broad a knowledge of Narcotic Addiction as the author of this remarkable little book. Dr. Bishop states in lucid terms just what the narcotic problem is and how it may be controlled. His pronouncement is revolutionary in conception and will give a message of hope, not only to the addict, but to physicians generally, any one of whom can handle the cure morphine addiction if properly informed,—administrators, legislators and others interested in the solution of this problem.

Dr. Bishop's statement is plainly that there is an addiction disease and this real disease should be treated as our other diseases. This is in direct opposition to the general conception that addiction is a "vice," a "habit," a "morbid appetite," and should be punished socially as well as legally. The way in which its victims are spoken of as "drug habitue," or "drug fiend," or "dope fiend," shows scientific neglect of it and apathy and indifference on the part of those who ought to better informed.

Dr. Bishop has devoted much study and experimentation in trying to solve the drug addiction problem. His national reputation is such and his book is so timely that it will prove a valuable adjunct to everyone interested in this perplexing problem.

DISEASES OF NUTRITION AND INFANT FEEDING, by John Lovetts Morse, A. M., M. D., and Frits A. Talbot, A. B., M. D. Second edition, revised. New York. The Macmillan Company, 1920. Price $4.00.

This work contains 384 pages. The first edition appeared in 1916, the present work is much larger; it has been thoroughly revised, considerable new data has been added and it has been brought down to date in so far as the exigencies of the world's war permitted. It gives a detailed description of a scientific basis of rational infant feeding. The work is intended to satisfy the demands, on the one hand of those students who wish to become acquainted in the original with the data on which the scientific basis of infant feeding rests and, on the other of the general practitioner who wishes to learn the clinical and practical side of infant feeding. We are satisfied that it has fulfilled the intention of the authors.

THE WOMAN OF FORTY, by Edith B. Lowry, 194 pages. Published by Forbes & Company, Chicago, Illinois. Price $1.25.

Evidently Dr. Lowry has aimed to supply in these aptly writen chapters a volume of encouragement that may be recommended safely by the physician to his middle-aged patients who feel the duress of years and need advice that will cheer and not obfuscate. Dr. Lowry's viewpoint is that forty years of life mark the opening of the gate to genuine development rather than the great divide between youth and old age. Fashionable dress, constipation, live interests, a definite ambition and the frequent need for seeking thorough physical examinations from reputable physicians and dentists are vital points emphasized in the book as well as the admonition that women past thirty must remember the charm that lies in a "bridled tongue."

Society Proceedings

ALEXANDER COUNTY

December 18 the Alexander County Medical Society held its annual banquet and election of officers at the Halliday Hotel in Cairo, at which meeting the following officers were elected: Dr. Jas. M. McManus, president; Dr. Charles L. Weber, vice-president; Dr. Jas. S. Johnson, secretary and treasurer; censors: Dr. O. M. Dickerson, Chas. L. Weber and J. E. Woelfle; delegate to the State medical association, Dr. W. L. Grinstead; alternate, Dr. Jas. W. Dunn.

There was no scientific program but a banquet following the regular business and election of officers that was a very enjoyable affair. Dr. G. H. McNemer acted as toastmaster. Response was made by the outgoing president, Dr. R. E. Barrows, and by President-elect Jas. M. McManus. Dr. W. F. Grinstead spoke on "Medical Organization" and Dr. Chas. L. Weber on "Military Experience." Dr. H. A. Davis and others told a number of good stories.

The Alexander County Medical Society had a very prosperous year, the average attendance was good and a great deal of interest was manifested by the members.

We hope next year to be the best in the history of the Society.

JAS. S. JOHNSON, Secretary.

CHRISTIAN COUNTY

TAYLORVILLE BRANCH.

This meeting, held at the office of Dr. D. D. Barr in Taylorville, December 27, 1919, was called for the purpose of formally taking recognition of the death of Dr. C. L. Carroll, which occurred at 5 p. m. on the 26th day of December, 1919.

At this meeting, after the various good qualities and kindly disposition of Dr. Carroll had been discussed and commented upon, the following preamble and resolutions were unanimously adopted:

WHEREAS, The Great Creator of the Universe had removed from among us our beloved brother and friend in the person of Dr. C. L. Carroll, the physicians of Taylorville have met in solemn session to record our sorrow and to express our sympathy to the bereaved family who remain to mourn his departure; and,

WHEREAS, Dr. Carroll has for many years been a valued and active member of this society and at times has served in official capacity, we deem it fitting and proper that we express our appreciation and love for him and make a record of these actions in the minutes of this meeting and records of the Christian County Medical Society; therefore, be it

Resolved, That in the death of Dr. C. L. Carroll this society has lost a most valuable member and that, with his family, we sincerely mourn his passing away; also, be it further

Resolved, That these resolutions be recorded in the minutes of this meeting and the records of the Christian County Medical Society, and that a copy be sent to the family and likewise a copy be sent to the ILLINOIS MEDICAL JOURNAL.

(Signed) DR. T. A. LAWLER, Pres.
DR. D. D. BARR, Sec.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, January 7, 1920

1. Occlusion of the Right Posterior Inferior Cerebellar Artery: George W. Hall.
2. Possible Advances in Civil Medicine Suggested by Experience in Treating War Injuries of the Chest: J. L. Yates, Milwaukee, Wis.
3. The Cystic Dilation of the Ureter with Report of a Case Successfully Operated Upon: F. Kreissl.

Regular Meeting, January 14, 1920

1. The Cystic Dilation of the Ureter with Report of a Case Successfully Operated Upon: F. Kreissl and Wm. Gehl.
2. Coccygodynia: Chas. J. Drueck.
3. Transpleural Laparatomy in Pathological Conditions of the Upper Part of the Abdominal Cavity and in Perforating Transdiaphragmatic Wounds of the Abdomen: A. G. Zimmerman.
4. The Treatment of Gonorrhea in Women by the Methylene Blue Process: W. A. Newman Dorland.

Joint Meeting of the Chicago Medical and Chicago Surgical Societies, January 21, 1920

1. Traumatic Injuries to the Chest in Civil Practice: George P. Muller, Philadelphia, Pa.

Discussion: J. L. Yates, Milwaukee, Wis.

2. Empyema: Evarts Graham, St. Louis, Mo.

Discussion: W. W. Hamburger, Ernest Irons and Jos. L. Miller.

Regular Meeting, January 28, 1920

1. Clinical Problems Relating to Chronic Suppurative Disease of the Middle Ear: George E. Shambaugh.

Discussion: Norval Pierce.

2. Treatment of Eczema: J. S. Eisenstaedt.

Discussion.

3. Projectile Fracture of Bones—A Comparative Mechanical Study: Kellogg Speed.

CHICAGO OPHTHALMOLOGICAL SOCIETY

Meeting May 12, 1919, Continued

DISCUSSION ON COMPENSATION TABLE

He also believed the point had been arrived at where they could interpret the Springfield table on a percentage basis and that they might adopt a table which might be the Springfield or the Milwaukee, and find that in the money paid the amount would be practically the same. A table of this kind might at this time or at any time be given to the courts or to the industrial commission as a working basis, and all other questions must be settled by the opinion of the oculist, and the oculist representing the injured man might express his

opinion. An expert called in by the Commission might express his opinion, and if the employer wanted still another man that opinion might be recorded, as the oculists were united. In other words, sciente and the three opinions would not differ very much and they could be added and divided by three and the amount really awarded the man would be about the same. He thought the award in many ways was very liberal; in Illinois the award was $12.00 based upon 100 weeks, and in Wisconsin it was $9.40 based upon 140 weeks, so it was about the same.

In his opinion it would be well for the oculists to have a table of their own in which they could offer their opinion on a given case. That might enter into the literature and be known to the board to be referred to, but that they should not ask the board to apply it except as deductions were made by some oculist. He considered stereoscopic vision negligible.

He hoped that the very simple matters and very practical questions had shed some light on the subject. He thought the oculists should fight out the question regarding the removal of cataract which resulted from injury.

Dr. Charles C. Clement thought it was impracticable to recommend a single report for the guidance of the Industrial Board and also for the guidance of the oculist. The Board should have a simple report which they could work on and there should be another report for the oculist. The Industrial Board would not be able to understand a very complicated report and simplicity should be the keynote of the report sent to them. He saw no reason why the society should not go ahead and lay the foundation by adopting the Springfield schedule for the guidance of the Industrial Board and then build on top of that as elaborate a report as they pleased for themselves.

Dr. H. H. Brown suggested that it would be well for Dr. Allport's motion to be so modified as to embody the Committee on Compensation Table and let them take up the report upon the Springfield table. He thought the work of the society should be considered and recognition should be made of that committee, as it still existed.

Dr. Frank Allport said that in making this motion, he supposed that this committee, represented by Drs. Gradle, Brawley and Woodruff, had handed in their report to the society and had been dismissed. Dr. Allport said he had no desire of producing any embarrassment to this committee, and while he did not regard their report as a satisfactory solution of the subject, he would withdraw his motion and recommend that the matter be reconsidered by the committee, and hoped that they would regard, with favor, the Springfield table which he had brought to the notice of the society.

He wished to admonish the committee to give up the discussion of abstract and involved problems and to endeavor to bring in a report that could be understood and adopted by laymen of average intelligence.

Dr. Robert Blue considered it very essential to know for what purpose the table was to be compiled. Whether for the guidance of the insurance companies, the Industrial Board, or for the estimation of ocular efficiency by oculists. If for the laymen it would be one thing and if for the oculists it would be another. If it was for the Industrial Board it should be as simple as possible. If for the guidance of the oculist in determining ocular efficiency an accurate guide for judgment should be sought rather than mathematical simplicity.

Alfred Murray, Secretary.

CHICAGO UROLOGICAL SOCIETY.

Meeting, November 20, 1919.

PHANTOM KIDNEY STONE.

Dr. Joseph A. Jerger: The subject matter of kidney stones is well known. I simply want to present a peculiar phase of the radiographic findings of nephrolithiasis. The appearance and disappearance of the shadow in this particular case prompts me to title my remarks, "Phantom stone." The suggestive findings even demanded surgical interference and the lower pole of the kidney was explored for the two calcareous deposits that were responsible for the shadow, but what was responsible for the disappearance of the shadow is beyond my comprehension. These plates were taken at different intervals. At one time we saw the stone; the next time we did not. Why the disappearance remains a puzzle to us. The kidney was pyelographed. Several prints showing two shadows were presented.

DISCUSSION

Dr. J. P. O'Neil: It might have been something in the bowel that passed on.

Dr. E. G. Mark, Kansas City: What prompted you to repeat the examination? Did you find the shadow in all the pictures of the same series?

Dr. Jerger: We gave the patient a bismuth meal and followed it up with three pictures. The findings of the shadowgraph catheter shows we were correct in the diagnosis, but the disappearance after taking a series of pictures was very puzzling to us. Whether there was anything in the density of the stone to give that disappearance or whether it was due to the technic of the radiologist, we cannot say.

Dr. Jerger (closing): We took a series of pictures. We found the shadow in all the pictures of the same series. Thinking that it was due to a radiographic error or a defect in the plate, we took other pictures.

BILATERAL CYSTIC KIDNEY—DOUBLE URETER—VESICAL CALCULUS.

BILATERAL CYSTIC KIDNEY.

Dr. Irving S. Koll: This is a specimen from my clinic in Post-Graduate Hospital. The man was 49 years of age, with every evidence of a marked cachexia. He gave the history that for three weeks he had a very pronounced hematuria. When he urinated he passed pure blood. I catheterized both ureters and from the right side obtained pure blood and from the left side perfectly clear normal urine. On the side of the hematuria a tumor mass was palpated. There was nothing palpable on the other side. I operated and removed the upper one of these tumors. For three days the patient passed a normal quantity of urine. On the beginning of the fourth day he showed signs of suppression. For thirty-six hours he passed no urine and I decided that the only hope was to excise the kidney. I went in on the other side and much to my amazement found another pericystic kidney. The only thing to do was to remove the kidney. He died two days later and I obtained this second specimen, which shows at the lower pole of the kidney, probably 1 square inch of normal renal tissue, which had worked its way into the pelvis of the kidney from which we were getting clear urine.

DOUBLE URETER.

This was discovered by accident during the course of routine cystoscopic examination in which there were no obstructions at all and urine was obtained from both ureters. The catheter, as you can see, went all the way up into the kidney. At the second sitting we had hoped to do a pyelography, but the patient has never returned for one.

VESICAL CALCULUS.

This vesical stone has one peculiar point of interest. This was taken from the bladder of a 1st Lieutenant of the Infantry, who wandered into my office when I was urologist at Camp Mills. He said he was accused by the Commanding Officer of malingering. On cystoscopic examination this stone was seen in the bladder.

We open the bladder under local anæsthesia and as this stone was withdrawn from the bladder, we found a piece of paraffin at the upper end. He did not tell me anything about the fact that he had been manipulating by intraurethral masturbation. We got the exact date at which the piece of paraffin broke off in his bladder and it was six months before the date of operation. From that we can see how long it takes a stone to form in the bladder.

DISCUSSION

DR. HERBST: I ask this question in the way of criticism. Why did you not crush that stone?

As to the pericystic kidney, I think the removal of a pericystic kidney is always a radical procedure and I think it is the last thing we ought to do. If a man has a pericystic kidney and we can tide him along in any way possible we ought to do it. I think if we go so far as to do a nephrectomy for a pericystic kidney, we ought to first ascertain the condition of the other kidney. In any event, if a man has a pericystic kidney and we can tide him along with ordinary treatment, I think he is better off. If he gets to the point where he is having pain and hematuria, I think it is a good idea before we remove the side we intended to go in and take a look at the other side.

DR. CROCKETT, La Fayette, Ind.: I am interested in the stone case that Dr. Koll reported. I have seen recently a case in an old man, some 80 years of age, with an enlarged prostate and a bladder that was filled with stones. I got something over 1,100 small stones from the bladder. The number seemed to be worth reporting, otherwise the case was not of any particular interest.

Recently I found a stone shaped very much like a jack-stone in a female bladder. The patient had been troubled for about two years and had received medical treatment for it. Bladder stones are more or less uncommon in females, but in this case there was a large, pronounced spicule. The same condition of residual urine that occurs with an enlarged prostate in the male.

I had another case in a soldier from a neighboring town, who had been in the Army and had bladder trouble. He had been accused of malingering while there and received treatment for the bladder trouble. On cystoscopic examination there was a fair sized stone in the bladder. These cases have been overlooked, in the Army especially.

DR. E. G. MARK, Kansas City, Mo.: The paraffin case recalls one I saw a number of years ago in which a piece of paper twisted in the form of a lamp-lighter had been introduced into the urethra. That was three weeks before I saw the case. When I saw him the deposits of phosphate were so strong that it was impossible to insert the operating cystoscope. What I want to call attention to is that the stone had formed in so short a time. You can have a stone form very quickly. I recall a case of a chewing gum stone. When I used the lithotrite in this case I got a peculiar sensation as of something pulling against the stone. I could not pick up the large fragments. I did not know what was the matter until I pulled out my cystoscope and there was the chewing gum.

In regard to Dr. Koll crushing the stone in the bladder, I might say that we did not have lithotrites in the Army.

DR. L. E. SCHMIDT: As far as the question of paraffin is concerned, it is occasionally introduced in other ways than masturbation. As a matter of interest, some years ago I came across a case of stone in the bladder which had formed around a piece of paraffin. I removed the stone suprapublically under local anæsthesia. The reason why I did not crush the stone in the bladder was on account of the size. The reason I mention this case is because there was a medico-legal aspect in connection with it. It was a case that took place here in Chicago. I was asked by the attorney why I did not crush the stone. The only excuse I could give was on account of the size and on account of the intense cystitis, though he was a young man. I could not account for the cause. In fact, the patient himself did not know the cause at the time he consulted me. After the stone was removed and had cross-sections made, I found the mass of paraffin in the center of this stone that was as large as an English walnut, possibly larger. There were encrustations around the paraffin, making the size of the stone that of a fair-sized lemon. When this question came up for settlement and when I told the patient there was paraffin, I inquired as to masturbation and whether he had carried out any procedure. He denied that, but said he had been treated for acute gonorrhoea some year and a half previously. He then remembered that some semi-solid fluid had been injected, which was supposed to remain in contact with the urethral mucosa. Of course, these methods of treating gonorrhoea are well known. The doctor then came around to see me in connection with the case and upbraided me for not having crushed the stone and removing it in that way, because, he said, "If you had done that, you would have found that you had a nucleus of paraffin and it would be up to you to dissolve this paraffin with benzine."

It is a well-known fact that there are a number of these cases recorded in the literature. At that time I had occasion to look up the literature and found the same thing recorded, and it was shown that you could dissolve paraffin with benzine or gasoline without injuring the bladder mucosa. I thought this case would be of interest on account of the enormous size of the stone. I never suspected for a moment what the nucleus was. If the patient had returned to the original doctor he would have suspected what the nucleus was, crushed the stone and dissolved the paraffin.

In regard to pericystic kidney, I have seen in recent years a number of cases and I have removed not less than five or six kidneys in which there have been intense hemorrhages and found at operation a pericystic kidney. I have had occasion to remove pericystic kidneys for intense hemorrhages and I have had no occasion to regret their removal. I understand there have been objections to removing a kidney of this type. As far as I am familiar with the literature no one ever questioned the double sidedness of pericystic kidney. There is only one produced in the last five or six years that states that pericystic kidney was singular. We are all familiar with that also and as much as I know that literature was obtained by correspondence from the men who had operated and they had never had experience in the genito-urinary work. I might say that many of these patients were operated by Chicago surgeons.

As far as all these procedures are concerned of puncturing and trying to stop hemorrhages and trying to drain pericystic kidney, they may be to the satisfaction of the men who have not had much experience for the simple reason that if a man would expose a kidney of that kind and puncture a number of these individual cysts he might obtain some relief if there were only one or two cysts. He is entirely mistaken in his belief that that will relieve the patient. It would be very nice if there were only one or two cysts that were causing the hemorrhage. I will admit that those who have tried that have reported rather favorably. In the two cases I have seen under my own eyes these procedures were not sufficient.

As far as exposing and examining the opposite kidney in order to find a pericystic kidney becomes unnecessary because it is beyond a certainty that you will find a pericystic kidney on the opposite side.

As far as the urine is concerned, any one who catheterizes this type of case will find urine that is characteristic of ordinary chronic interstitial nephritis. In many of these cases of chronic interstitial nephritis, you do not find any albumin and invariably you find light colored urine with a light specific gravity from the quantity given off. Then if you take the specific gravity and estimate the urea, you will get a report that

will with certainty permit you to operate on this side, and I will venture to say that you would do a nephrectomy without taking into consideration the opposite kidney. I want to agree with Dr. Herbst that it is always desirable when you are dealing with a pericystic kidney, even though you cannot feel the healthy side, to put such a patient on the same kind of treatment as a patient suffering from chronic interstitial nephritis. It is possible to treat such a patient without hemorrhages. When the hemorrhage once starts it keeps up. There are many cases in which these hemorrhages are intense, so intense that surgical interference is absolutely necessary in the way Dr. Koll carried it out.

Dr. Martin: I would simply like to state that it has been my experience the last year to observe several cases of calculi in the bladder following prostatectomy, where men have had a suprapubic prostatectomy and from three to six months later in all the cases there was a large calculus formed in the bladder, and the reason was, that this calculus formed around some little tag of mucosa that was left free in the wound. It only stands to reason that these calculi can form very rapidly.

Dr. Kretschmer: In reference to the occurrence of double ureter, the fact that interested me in Dr. Koll's case was whether he tried to decipher from the x-ray where the ureter crossed. I have seen three or four cases and all of them have crossed down about the origin of the brim of the pelvis. I have seen three or four in normal individuals. One was in a stricture of the ureter and the patient passed a stone from the opposite side, that is the normal side. I think Dr. Koll and Dr. Schmidt are correct in reference to the treatment of pericystic infection. Pericystic kidney is always bilateral. I think if you are going to do any operating, you have two real indications for operation, one is to stop the bleeding and the other is, if the patient is very sick, you have to operate and pack just as Dr. Koll did. The fact that stands out very prominently in his case is that he was not able to tell what was on the other side.

Dr. Koll (closing): The point of interest in connection with the stone was that the patient admitted afterwards that he knew the time the paraffin broke off and consulted a physician, who told him not to worry about it, it would melt.

I think Dr. Mark answered Dr. Herbst's question; we had no lithotrites in the Army.

I think it showed very distinctly on the x-ray plate that the ureters did not cross. Legrue has reported some cases in which accessory ureters have been implanted in the vagina and he also reports one in the external urethra of the female.

In regard to the pericystic kidney, I think Dr. Schmidt is right. With this patient, whose hemoglobin was only 40, I did not know what to do except to do a rapid nephrectomy.

SOME ADDITIONS TO THE SURGICAL TECHNIQUE OF THE EPIDIDYMIS, VAS AND SEMINAL VESICLES.

Ernest G. Mark, M. D., Kansas City, Mo.: I feel that the work we have done in the last year has brought to light a few things that may be of interest and may be of value in vasotomy, if vasotomy is ever used extensively.

A good many of you will recall when Thomas Sippy read a paper on vas puncture at the American Urological Society and spoke of picking up the vas and inresting a needle. At that time he was rather roundly jumped on and I think with a good deal of cause. I think we can dismiss any idea of vas puncture. I think after one has done much vas surgery, he can see how impossible or impracticable it is to strike the lumen of the vas with a sharp needle. There has been no question in my mind since Dr. Herbst and Dr. Belfield brought this to the attention of the urologist of the value of vasotomy. There has only been this question, that is in injecting into the vas or washing out through the vas whether or not we get into all the little ramoses of the valves, whether we do not possibly wash in something into the posterior urethra and do not get into the ramose. We have practically abandoned vasectomy if the case is in any way suitable for vasotomy.

There is no need of going into the technic of opening up the vas. The point we make is this. It is always done under local. The patient is put on the table and before he goes into the operating room the vesicles are practically stripped of their contents, at which time the patient urinates. Upon going into the operating room the vas is picked up in the usual manner, not by a high incision, but at a lower part of the scrotum the vas is opened by a linear incision, stripped down, and a silkworm gut suture passed up into the vas. We make the injection and wash out as quickly as possible the vas. After we have made the injection of 10 or 15 c.c. into the posterior urethra, the assistant puts his hand into the rectum, bringing pressure on the urethral portion of the prostate. Then the injection is made. We are using at present an ordinary needle with the smaller part broken off so that the needle fits fairly snugly into the vas itself. After the injection is made into the vas, closing off that portion of the ejaculatory duct, then the valves are filled with irrigating solution. We are using argyrol, 20 per cent. solution. Dr. Belfield has been using collargol. Sometimes in making this injection the thing that was called to our attention by Dr. Belfield was that after 2 or 3 c.m. were injected there was a sudden giving way, which I think they attributed to a giving way of the sphincter, but we found this same thing in injecting the vas in the other way and we believe it is the giving way or breaking up of these little ramoses in the vesicle itself. One of the things we have to guard against in putting so much pressure on valves of that kind is the regurgitation that may take place along the vas and into the epididymis. It is merely sufficient under circumstances of that kind to insert a silkworm drain. In the first case we got a definite backflow and a definite artificial epididymitis, because we did not close off the vas. Since that time we have use of two or three procedures. We have used two or three silkworm guts, simply throwing a light catgut ligature around them. Lately we have made use of two things, a curved probe against the scrotum, and we have also made use of an ordinary safety pin that has been broken off and rounded off so it will enter the vas itself.

We are experimenting, of course, and though the time of using the procedure is too short to give any definite results, we believe by that method we can accomplish some good.

Not long after my return from service I was called into the operating room nearby where a man in doing a varicocele operation had tied off his vas and he wondered what to do. It was a question of anastomosis. We found it rather hard to do an ordinary anastomosis, so we inserted a very fine cambric needle on which we tied a silkworm-gut and brought it on the vas. Then inserted a silkworm-gut on this end and drew the ends together, the silkworm-gut making a

continuous pull and practically keeping open the lumen of the vas. With a small eye needle the ends of the vas were brought together.

Again we had the same thing happen with a case operated by one of our assistants, in which he cut the vas in two in doing a vasotomy. That method has also been used since in stricture of the vas. We have used it where there has been a certain amount of vasiculitis and in starting to go into the vas we found a stricture of the vas.

This brings us to the point of early epididymotomy. We have found, as probably most of you have, that it is awfully hard to get a man to go into the hospital and have the epididymis opened, even with an acute epididymitis. There have been so many methods, such as making a little puncture, treating the testicle, etc. We have found that the only technic to follow is that of Hagner. When we got these cases in the army—we started first at Camp Sheridan putting them on an ordinary Belfield table, and somebody gave them antimeningococcic serum. I have seen that act almost like morphine. In opening the epididymis we opened the entire capsule of the epididymis. The whole capsule is split from end to end. You see the tubules practically roll out. When you get through, you could no more close that capsule with those enlarged tubules than you could fly. We use a blunt-pointed instrument and go into the tubules and get out the pus. We believe no epididymotomy should be done without opening the capsule entirely. We feel that epididymotomy should be done on all cases of acute epididymitis due to gonorrhea which do not subside in 24 hours.

When we come to the question of when to do epididymotomy and when to do epididymectomy, we find these men coming back to us after we have done epididymotomy. I had one three months ago and one six months ago, so that I feel epididymotomy does more harm than it does good. In those cases in which there has been a recurrent epididymitis and in which there is much enlargement of the epididymis, not an epididymotomy, but an epididymectomy should be done We believe we are pursuing it along the right line. Incidentally, it may be said that no epididymotomy is done without a vasotomy. At the time we do this we also wash out the bladder. At the time we do the epididymotomy we should also do the vasotomy and at that time an injection is made into the vesicle under pressure. In this case we do not fear regurgitation that would take place backward into the epididymis. In fact, we rather welcome it. In other words, we make no efforts in this type of case to tie off the proximal end of the vas. We have not made use of procedure of drawing up the vas and sewing it to the skin. We have made use of the procedure of threading in a silkworm-gut and using it as a guide to make the injection.

We think we do not get much better results from vesiculotomy than from vasotomy. Since my return from service I have done only two vesiculotomies. In other words, I believe the vesicle that gets to the point that requires drainage which cannot be accomplished by a vesiculotomy properly done is the vesicle that should be removed. The technic that we make use of is practically a modification of Cabot's technic and also of Cunningham's and George Whiteside's of Portland. We make our primary incision as if we were going after the lower end of the ureter; in other words, as if we were making for a stone at the lower end of the ureter, opening extra-peritoneally and picking up the vas as it leaves the vessels and using it as a sort of a fishing line, pulling it up until we come to the ridge. At that point we break through with a blunt dissection, at which time all hemorrhage is stopped. The wound is left wide up; it is not closed; in other words, we do not go through the inguinal canal as described by Cunningham by cutting extraperitoneally. This wound is left wide open. It is applicable in those cases in which we want to do an epididymotomy. In other words, if you are doing a simple vesiculotomy the vas is tied off and no more attention paid to it. In this operation the vas is tied off and the patient is thrown up into the extreme lithotomy position. An ordinary curved incision is made in the perineum and a dissection made down until we come to the fascia covering the point where we would ordinarily go in for the vesicle. At this point the assistant puts his hand into the wound and pushes down the edge of the vesicle. By simply making an incision down along the vesicle we can practically deliver that vesicle out of the peritoneal wound. We are not concerned about bleeding because we have done away with the bleeding in the primary incision. If it is tuberculous, we make a V-shaped incision on the prostate itself and remove that portion which is diseased. A distinct advantage of this operation is by the pressure of the assistant's hand in the open wound so that the vesicle is practically delivered in the open wound.

DISCUSSION

Dr. Belfield: Mr. President, I would like to begin at the end of Dr. Mark's remarks and congratulate him on his improvement on the standard operation of vesiculectomy, which is unquestionably a great improvement. Also on his implied rather than expressly made statement that vesiculectomy should be done where in the past vesiculotomy often has been done. Vesiculotomy is necessarily a blind affair, which was all right at the time when no one had observed the peculiar branching formations of the vesicle and when they used to think they had to simply go into the sac and drain it.

I come now first to the x-ray pictures that have been taken which show that the vesicle resembles very much the weeping willow tree, so that we can understand what a wholly blind affair vesiculotomy was. While there is no doubt that this destruction of the vessels cured some cases of vesiculitis, and I have done a few myself, a good many surgeons who attempted this operation did not know what they were trying to do.

In January, 1895, the Mayos reported a case in the Annals of Surgery of a young man who had received a stab wound in the scrotum, one of the results of which was a division of the vas. They used just the method that Dr. Mark has described, except that they used catgut and left it in. Some years afterward Dr. Lydston of this city re-discovered the method, using silkworm-gut and bringing it out through the skin, a big improvement for our purpose over the catgut of the Mayos. That has become of late a rather standard operation, of resecting the vas in the scrotum when necessary and reuniting it by rows of silkworm through in the way Dr. Mark described.

That serves as a splint to hold the cut ends of the vas in position. It is a simple thing and a very satisfactory thing to do. There is one thing, though, that both the Mayos and even Dr. Mark used and that was an ordinary fine needle with the thread passed through the eye of the needle. Now, of course, the vas is so manipulated that to pass the thread into its lumen and then out means sewing of the two layers of the silk or whatever you use. I have for a good many years in working on the vas run a fine silkworm thread through the finest hypodermic needle it would carry, usually a 24-gauge, inserted the hypodermic needle and then passed the silkworm through, so that your wound in the vas is nothing but a hypodermic puncture, and then withdraw the needle and you have the thread in position. Really I think that is a modification.

It is very gratifying indeed to one who has preached for years the fact that epididymotomy is merely a temporary affair, and to hear Dr. Mark emphasize the absolute necessity when one makes an epididymotomy of injecting the vas and the vessels and cleaning out of the vesicles. This is so self-evident that no one would do an epididymotomy without washing out the vesicle. We all know that the vesicle is infected before the epididymis. I am speaking of gonorrhoea and other infections not hematogenous. It is usual when the vesicle gets blocked that it breaks down and pushes the contents into the epididymis. It is strange that any one ever did an epididymotomy without trying to get the pus out of the vesicle. I did it myself before the French brought out this operation. I did an epididymotomy and thought I had done something very good, and about two months after the patient came back with the same epididymis swelled up. Then, of course, it dawned on me what should have dawned on me before—that I had mopped up the floor and let the faucet run. The second time I cleaned out the vesicle and this is what brought me to the habit of washing out the vesicle. I want to emphasize what Dr. Mark has shown that no epididymotomy should be made unless at the same time the vesicle is cleaned. I might say incidentally that I have seen twelve cases, including some cases of my own, where the epididymis that had been incised has become reinfected without any fresh urethral infection. One was operated by a very excellent genito-urinary surgeon and that man had three recurrences within five months on the same side. It stopped as soon as he washed out the corresponding vesicle. They say, "Oh, well, a good many cases of epididymotomy do not have a recurrence," which is also true; but it is true that in a good many cases there is recurrence. It is perfectly obvious that what Dr. Mark said about epididymotomy without washing out the vesicle is absolutely correct.

The most notable thing as far as I am concerned was Dr. Mark's suggestion about making complete discharging of the vesicle by pressure on the ejaculatory duct. That strikes me as very promising. That is something I shall follow. He is also right in saying that failure to cure these patients is due to the accumulation of a semi-solid inflammatory shreds in these parts of the vesicle that open off. I have recognized that and know that my 20 to 25 per cent of failures to cleanse the vas were due to the fact that I did not know about these semi-solid masses. I have seen repeatedly the effect of collargol and very likely some other things in softening and bringing about those things. Take, for instance, a man with a chronic vesiculitis. We strip the vesicles and he does not get well. When we douche him with 6 per cent collargol and now oftentimes right at the time there will be lumps of stuff come out with the urine. If at the end of urination the vesicles are compressed, the contents of the vesicles in the shape of semi-solid black masses colored with collargol will come and massage of the vesicles will bring a lot of rubbish that you never dreamed was there, and I think that failure to clean out the culdesac, as Dr. Mark emphasized, is the reason why in certain per cent of the cases we do not secure success in cleansing the vessels. I doubt very much, however, whether the trouble is a failure to get into this culdesac. In the first place, I have made a good many x-ray pictures of vesicles injected with collargol and one sees the ends of this vesicle perfectly rounded and curved. We did not see any with dark, irregular ends as if blocked, so I am not so sure that the collargol does not go into the ends of these branches, but I am pretty sure that it does not always soften and bring them out, and that is the reason why we do not get them cleaned out, and that is why I always place a silkworm-gut in the vas so I can inject there as often as I please.

One question I would like to ask, Why do we let all these gonorrhoeal cases become chronic in the vesicles? I think that is where there is a chance for us not only to do our patients good, but to show to the profession in general that we can do better in treating acute gonorrhoea than they can. Now I regret to say that a good many of them do not think so and I am not sure that many of them are not right. I am speaking of acute gonorrhoea. If the general practitioner will do right, he will send the patient to some one whom he knows has had more experience than he has. If we are perfectly frank we will admit this, when we get a case of acute gonorrhoea in a certain large percentage of the cases it goes into the deep urethra. I am sure it is true in a majority of the cases, of acute gonorrhoea, the infection goes into the vesicles within the first week; then the reason we do not all recognize it is that we have not differentiated the infection in the prostate from the infection in the vesicles. I do not know that it always goes into the vesicles, but it often does. Assuming that in a given case we recognize the extension into the vesicles, what is our standard orthodox treatment? According to the text-books it is systemic treatment that the patient is given. Now we know for years our systemic treatment consisted in waiting until nature had reduced the acute infection before we felt safe in beginning to massage and strip the vesicles, and we hoped in the meantime that the infection would not spread to the epididymis and that the patient would not get gonorrhoeal rheumatism and that he would not get all the things that come from acute infection. If you stop to think that the area of the vesicles is nearly equal to that of the urethra, you see what a real wealth of infection we have which we do not attempt to manage. I am sure that in time when the attention of the urologists are brought to it, we will take care of the cases in the manner we should. We do not need to elevate the vas as we used to and disturb the relations. We do not disturb the vas. We make a skin incision ¼ to ½ inch over the vas, simply nick the vas enough to insert the hypodermic needle, put in a silkworm-gut and carry through the hypodermic needle out through skin and use that as a guide to reinject as often as may be necessary. I may be, of course, mistaken, but I wonder if you gentlemen have had the experience which I had just a few months ago.

A well-known physician in this town sent in a relative of his with acute gonorrhoea. About the fourth week he had an acute infection of the right elbow and the tendons of the anterior tibial region, with a temperature of 103.5 degrees. In other words, he had an acute blood infection, with localization in at least two spots. Now, until the last few years we could not do much for this type of patient. This man had his vesicles washed out promptly and in nine days there was no evidence of the constitutional infection. It took but three weeks to clear up the rest of the discharge.

I would suggest that if we got our treatment of chronic vesiculitis pretty thoroughly disseminated through the profession, then we should teach them that we should not have chronic vesiculitis and that we should not have all the well-known results of chronic gonorrhoea.

Dr. L. E. Schmidt: As far as vesiculotomy is concerned I do not see the necessity of this incision he has referred to. If vesiculotomy is carried out, it will be naturally carried out fairly well under observation. In the majority of instances I have proceeded in this way. I do not believe that that point has been brought out. The vesicles are exposed and removed and the common duct ampullae left in place. Now if we can operate and leave the ampullae intact, I cannot see any reason why I am obliged to go in from above and use pressure to bring the vesicle out into the perineal opening. It is perfectly true that in those cases of vesiculitis that are tied down by inflammatory tissue, this procedure may be necessary. If Dr. Belfield recalls, when this society was first organized I showed at different times a complete removal of both vesicles,

leaving the duct intact. Of course, in doing this we are obliged to make this incision and we practically tie off the external iliac, but to simply make a vesiculotomy I see no need for it. In those cases I have treated in recent years I have always done a vasotomy and injected fluids through the vas directly into the urethra.

As Dr. Belfield said and as Dr. Mark brought out, I am quite sure that when this subject was brought forward by Dr. Belfield at one of the meetings of the Urological Society that the point was distinctly made as regards always doing a vasotomy in connection with operations on the epididymis. It is not a question of whether you are going to do an epididymotomy. You certainly should do a vasotomy because those are the cases that demand attention on account of recurrence and the ones that have been seen so frequently.

In doing a vasotomy you make the exposure sufficient so as to allow the duct and ampullae to remain intact. You can expose your vesicles and you can introduce your finger in and they will pop out just the same as if you had an opening there and were obliged to press on them. The vast majority of vesiculotomies that are carried out have the vesicles distended like bunches of grapes which are markedly adherent. If you have to remove a tuberculous vesicle that is bound down by an enormous amount of exudate, there is no doubt but it might be necessary to use the pressure to help enucleate the vesicle.

In regard to vasotomy in general I agree perfectly well with all that has been said, and I think if vasotomy is to be carried out the most refined and simple method should be used. I think Dr. Mark and Dr. Belfield have pointed out that some of the methods carried out for exposition of the vas are entirely unnecessary. I agree entirely with Dr. Belfield's views of putting something in the vas, either guttapercha tissue or something to bring out the vas. If you cannot pull out your vas and see its lumen, you are not in a position to treat from day to day. I am in the habit of injecting as often as I possibly can. If the end of the vas is so exposed that I can inject it, I do it from day to day; I have injected it over a period of fourteen to even twenty-one days. After you inject, you can massage the vesicle and treat it, not necessarily from day to day, but as often as desirable. If I understood what Dr. Herbst said at one of the meetings four weeks ago, he only makes one injection. From his experience he ought to be able to tell whether it is necessary to inject from day to day. If not, I would like to ask what is the objection of doing it from day to day. I am certain that the x-ray shows that this material remains in place for a long period of time. The objection is offered that you have the patient in the hospital so long. Personally, I am certain there is no objection to it.

Now as far as the question of vasotomies in general, I want to say what I said some weeks ago. I do not believe that the bad results that are reported from time to time are due to vasotomy. To be perfectly frank, if you spoke to a good many men who carry out vasotomy, they would tell you that some of the cases are the same as when they started treatment. If you carry out vasotomy on a number of cases, say, and think you are going to cure every case of urethritis, you are going to be disappointed because there are strictures and other complications which keep up the trouble. What I want to say is that in most instances the cases are not properly selected.

Dr. Herbst: I wish to mention something that was mentioned before this evening both by Dr. Belfield and by Dr. Mark, namely, acute inflammatory vesculitis due to the gonococcus and never recognized. Frequently the seminal vesicles are resected for acute purulent discharge coming from the urethra in the acute cases only. We studied about twenty odd cases from a large series of this type. We selected patients who had had a purulent discharge for a period of over six weeks. You must have all seen such cases. I selected these cases and performed vesiculotomies on them, not with the hope of curing them, but simply with the hope of finding out whether the vesicle was not producing most of the pus. I made this report in the Journal of the American Medical Association. Within forty-eight hours after the injection of the vesicles with collargol this discharge had either diminished or disappeared. I am not referring to these as cured cases, but merely to show the part that the seminal vesicles play in the production of the discharge. I think it did play a part in the case reported by Dr. Belfield.

As for selecting cases for vasotomy, given a patient who comes in with so-called gleet, we exclude other things and we put him on routine treatment. We do this for two reasons, one is that some of these cases are cured. I do not believe that many of them are completely cured. However, this is the general routine that many use and we use in all the cases before we subject the patient to vasotomy. Having failed in this treatment we perform vasotomy. Personally, I do not believe it is necessary to inject the vesicle more than once. If you put 2 or 3 or 4 c.c. of collargol into the vesicles—I mean if the vesicle receives the collargol without any response—we continue to put in the collargol. If we meet with response we wait. You will find that the vesicle will empty and you can put in more. We generally use 30 c.c. We had one case that had a black emission for fifty-nine days.

I do not think it is necessary to frequently perform vasotomy.

I think the ordinary man realizes that when you have a vesicle that does not respond you have one or two things to do—a vesiculotomy or a vasotomy.

As regard to technic, Dr. Mark says we cannot inject the vesicle with a pointed needle. I wish to emphasize this. All these modifications in the operation with the idea of not injuring the vas are merely make-shifts. If one makes a small knife puncture in the vas, he does not make any larger opening than with a needle. If one expects to inject the vas with the point of a needle he is going to get into trouble, because I have tried it and I know. If you put the point of the needle into the vas, you pick up the lining of the vas. This explains why so many of these cases for a long time have swelling of the cord.

Dr. Bremerman: I would like to emphasize Dr. Mark's little trick of letting out the fluid by pressure in the rectum. I think it is very nice and the very next case I have I am going to try it.

Dr. Koll: Just one point that has not been fully dwelt upon and which I believe is of a great deal of value, that is injection after epididymotomy. I heartily agree with him in exactly what he says. There are certainly cases in which we should resect the epididymis and then inject the vas.

Dr. Mark (closing): Mr. President, I am very much gratified with this discussion. The first thing I want to say is that I did not mean in bringing these things out that they were with very few exceptions the best things to use. In the first place, I believe vesiculotomy ought to be done unless we have a distinctly nodular vesicle. I believe most of these so-called fat vesicles will respond to a vasotomy properly done. The other kind are harder to get out unless you are familiar with them. Furthermore, an incision in the longitudinal axis of the vesicle, I believe, is not so good as a transverse incision through the fascia. I believe we get a better exposure. Also, if we are going to take out the vesicle, why not take out the infected vas? If we are dealing with a tuberculous condition, it is essential to take it out. This litle trick, if one wants to call it that, is of material help.

I want to agree with Dr. Herbst absolutely about vasotomy and vesectomy. We know that a single injection is all right. There are cases in which another injection is advisable.

In doing an epididymotomy I divide the epididymis down until it actually exposes the tubules, so they roll out and then simply by the use of a blunt probe we clean it out and then we do the epididymotomy.

I want to call attention to another thing; that is, ordinarily in vasotomy I simply use a silkworm-gut up the vas. In the first case in which we tried this method we had an artificial epididymitis almost immediately. In the other cases we have injected the lower end of the vas. I think unless the possibility of regurgitation is kept in mind, you are going to have difficulty.

GREENE COUNTY

The annual meeting of the Greene County Medical Society was held in Roodhouse, December 12, 1919.

After participation in a good dinner the society was called to order by President W. H. Smith at 1:30 p. m. in the dining room of the Roodhouse Hotel.

In the absence of the regular secretary, L. O. Frech was elected secretary pro-tem.

The following officers for the ensuing year were elected: President, E. E. Jouett of Carrollton; vice-president, W. C. Tunison of White Hall; secretary-treasurer, L. O. Frech of White Hall; delegate for two years, L. O. Frech of White Hall; alternate delegate, two years, Howard Burns of Carrollton. W. T. Knox was elected censor for three years to fill the expired term of E. J. Peek and C. R. Thomas, censor for one year, to fill the unexpired term of O. L. Edwards, removed.

Dr. Russell E. Adkins was then introduced to the society and after delivering a lecture on tuberculosis in behalf of the Illinois Tuberculosis Association, held a very interesting and instructive clinic which lasted for two hours and fifteen minutes. Miss Augusta Giller, R. N., of Carrollton, was in charge of the patients during their preparation.

Drs. Krohn of Kane and Gaston of Carrollton were elected members.

After a thorough discussion of the smallpox situation in Greene County the board of censors reported Carrollton as the next place of meeting, Friday, March 12, 1920. Upon motion, the society adjourned at 4:05 p. m. Twelve members and two visitors were present.

L. O. Frech,
Secretary Pro-tem.

MADISON COUNTY

Our December Meeting

The Madison County Medical Society met at the Y. M. C. A. Building in Alton on December 5, 1919, with President Dr. Chas. R. Kiser in the chair. Thirty-three members were present.

On motion of Dr. Pfeiffenberger, the secretary was authorized to purchase 500 Red Cross seals on behalf of the society. On motion, Joseph Berry of Granite City and Robert Goodless of Collinsville were admitted to the Harrison Colony at our expense. Miss Helen A. Heighway read the report of work done in November, which was received and ordered filed. The secretary read his annual report and the treasurer read his report and both were referred to the auditors and found correct. It was ordered that both of these reports be published in *The Madison County Doctor*. Dr. R. D. Luster, as manager of the Red Cross Seals campaign, made a report showing the canvass well started in all parts of the county. On motion, it was suggested that the editor publish in the next issue of our bulletin the ruling of the State Board of Health on reporting of communicable diseases.

The annual election was held, which resulted as follows: President, Dr. F. O. Johnson of Granite City; vice-president, Dr. Eugene F. Wahl of Edwardsville; secretary, Dr. E. W. Fiegenbaum of Edwardsville; treasurer, Dr. J. A. Hirsch of Edwardsville; medico-legal-member, Dr. M. Pfeiffenberger of Alton; member of board of censors, to serve three years, Dr. L. Schreifels of Granite City.

The retiring president in a neat little speech extended his thanks to the members for their co-operation during the year, and expressed his appreciation for many courtesies received. He then introduced the newly-elected president, Dr. F. O. Johnson, who thanked the members for their vote of confidence in placing him as the executive head of the society for the coming year, and pledged his every effort in furthering the best interests of the society.

On motion adjourned to meet in Edwardsville on the first Friday in January, 1920.

ST. CLAIR COUNTY

The annual meeting of the St. Clair County Medical Society was held in the rooms of the Retail Merchants' Association on Thursday, January 8, 1920, at 8:00 p. m., with twenty-three members and two guests present.

Minutes of December meeting as published in the *Bulletin* were approved.

Reports of the secretary and treasurer were read and accepted.

Officers for the year 1920 were elected as follows: H. A. Cables, president; L. D. Applewhite, vice-president; C. W. Lillie, secretary; A. E. Hansing, treasurer; H. M. Voris, T. V. Boyd and A. B. McQuillan, censors: C. A. W. Zimmerman, medico-legal advisor.

Drs. Eugene McQuillan and W. Kenneth Brown of East St. Louis and Dr. Edmund Bechtold of Belleville were elected to membership.

The proposed amendments to constitution, as published in the *Bulletin* for January, were presented, discussed, amended by striking out Section 6, and changing the word "shall" in Section 5 to the word "may" and adopted.

C. W. Lillie, Secretary.

SEWAGE DISPOSAL FOR DECATUR

The Division of Sanitation has approved plans for an intercepting sewerage system at Decatur which will collect sewage from the outlet and which will entail an expense of approximately $1,000,000. The necessity for this plan arises from the fact that the sewerage system of Decatur has been constructed without definite plan. A similar unsatisfactory development has been carried out in Springfield.

FUND FOR CRIPPLED CHILDREN

A fund of $10,000 has been raised at Freeport, Stephenson County, for the support of a clinic for crippled children, and for public welfare work. The clinic for crippled children is operated under the supervision of Dr. C. W. East of the Division of Child Welfare and Public Health Nursing, State Department of Public Health.

NEW YORK FORMS GUILD TO FIGHT HEALTH INSURANCE

Through the presidents and secretaries of their organization, the Medical, Dental and Pharmaceutical Societies of Kings County have formed a guild known as the Professional Guild of Kings County, which has for its object the presentation of a scientific plan for welding of doctors, dentists and pharmacists of the State of New York into a "compact working unit with the moral courage to oppose such pernicious legislation as that embodied in the Davenport-Donahue bill providing for compulsory health insurance." The specific purposes of the organization are: (1) Unification of the professions. (2) The formulation of legislation especially along lines of public health. (3) The education of the public in matters of public health legislation and co-operation with other civic bodies along lines of public improvement. The plan contemplates the establishment of a similar organization in New York County and then the extension of the organization to the various county medical, dental and pharmaceutical societies.

THE NEWER CONCEPTION OF TUBERCULOSIS

Krause, of the Johns Hopkins Medical School, in an address delivered before the recent New Jersey Joint Conference on Tuberculosis, attempts a review of the anti-tuberculosis movement and indicates how our measures of prevention and control should be supplemented and enlarged so as to square with the shifting point of view that the newer knowledge of the disease of the last ten years has brought us.

Not all the diminution in the tuberculosis mortality rate may be ascribed to our intentional efforts. Much is undoubtedly due to the broad social and economic movements that have brought about better living conditions. Since the application of the Pirquet test we have learned that tuberculosis infection is practically universal. It is therefore at least questionable whether efforts at prevention and control should be too largely concentrated on the prevention of infection. Infection, of itself, is of comparatively minor importance It is the development of infection into clinical disease, into manifest tuberculosis—that we are really concerned with and should make every effort to prevent.

Krause pleads for a better appreciation of this phase of the situation and asks for renewed effort for the expenditure of money without let-up, for what amounts to the unremitting and universal education of physicians and laymen in the truths of tuberculosis, and for a broadening and intensification of the work of the National Tuberculosis Association. He concludes:

"Nor is there room in the anti-tuberculosis movement for a single note of discouragement. The pessimists among us can be only those who are deficient in grasp and breaths. Civilization and tuberculosis are contemporaneous; the number of the tuberculosis and the number of civilized beings are almost coequal; therefore, to despair of tuberculosis is to despair of civilization. A graft that is so much a part of us as is the development of our ethical sense cannot be lopped off in a day; but it can be kept from flowering and bearing fruit. And until we can wage direct warfare on the germ, to keep it in the seed should be our main purpose."

Personals

Dr. Frank M. Mason has removed from Rossville to Danville.

Dr. E. H. Trippel of O'Fallon is said to have contracted smallpox from a patient.

Dr. W. S. Taylor of Ashland was painfully injured in an auto collision last month.

Dr. F. N. A. Hoffman of Effingham was slugged and robbed in his office by a fake patient and another thug.

Dr. O. Alfred Olson, Rockford, is reported to have been arrested in a raid on communists in Rockford, January 8.

Captain B. S. Hutcheson has resigned from the Canadian Army to take up practice of medicine and surgery in Cairo.

Dr. A. Joseph Shonkwiler of Paris has resumed practice after an extended course of eye, ear, nose and throat work at the New York Post Graduate Hospital

When Dr. E. D. Converse's office was raided by federal narcotic sleuths in Chicago, he is said to have protested: "I'm only prescribing freckle cures." Have you tried the cure?

Dr. J. N. Nelms of Taylorville has been nominated a life member of the U. S. Good Roads Association by Governor Lowden in recognition of his efficient promotion of the movement.

It is reported that citizens of Oakland presented Dr. J. C. Russel with a Ford runabout. It appears that the Doctor has been doing them good and they are returning the compliment.

Dr. Dudley B. Reid of the University of Chicago was elected president of the National Council of the American Physical Education Association at its annual meeting in New York City, January 1.

The staff of Passavant Hospital, Jacksonville, was organized last month by the election of Dr.

H. C. Woltman, president; Dr. T. O. Hardesty, secretary; Drs. Walter L. Frank and David Reed, members of medical board; Dr. A. S. Adams, trustee for three years.

A "Dr." James H. Honan of the University of Chicago is alleged to have denounced coffee as a poison, tea as a shatterer of the nerves and water as responsible for increased blood pressure. Alas and eke alack for the good old days when one did not have to drink such deadly stuff!

A committee of the Oak Park Physicians' Club, consisting of Drs. Arthur M. Corwin, Harry J. Stewart, Leslie W. Beebe and Clarence E. Hemingway, January 15, cleared Dr. Thomas E. Roberts of charges that he had received remuneration for services as director of the American Red Cross Bureau in Oak Park.

Drs. Casey A. Wood, Frank Billings and Harry E. Mock are colaborating in the preparation of a medical history of the war which will be very comprehensive and may extend to twenty volumes. The first volume, on hospitals, written by Dr. Wood, is ready for the press. Drs. Mock and Billings have the subject of rehabilitation of disabled soldiers under way.

The Kewanee Public Health Association organized a medical staff at a dinner, January 8. Dr. J. H. Oliver was elected chairman and Dr. Chas. Coffin, secretary; Drs. G. H. Hoffman, Wm. D. Hohmann and P. J. McDermott, members of board. Dr. McDermott promised the co-operation of the Henry County Medical Society and Dr. Coffin spoke for the Kewanee Physicians' Club.

By an unfortunate and at present unaccountable error a personal appeared in the January JOURNAL to the effect that Dr. Harold Swonberg had located in Chicago. Dr. Swonberg is located at 731 Hampshire street, Quincy, where he is continuing the practice of Roentgenology, in which he specialized in the U. S. General Hospitals at Fort McPherson and Fort Sheridan.

Dr. Roger Adams of the department of chemistry, University of Illinois, has received a grant of $3,500 from the Social Hygiene Board of Washington, D. C., for research work on new organic arsenic and mercury compounds of possible therapeutic value, especially on specific disease of the nervous system. Prof. W. L. Lewis of Northwestern and L. W. Jones of Minnesota are collaborating with him.

News Notes

—Additional buildings which have been begun at the Alton State Hospital will represent an investment of $500,000 and will increase the capacity of the institution from 700 to 1,300.

—Announcement is made that a United States Public Health Hospital is to be established at Great Lakes, the barracks of naval units No. 19 and No. 20 being employed for this purpose, after remodeling.

—At a meeting of the stock yards branch of the Chicago Medical Society, January 15, the activities of the sanitary district as a function in the health of Chicago were discussed by Dr. Willis O. Nance, president of the sanitary district.

—On January 17 the Society of Medical History was addressed by Col. Casey A. Wood on the subject, "William Bailey, Author of the First Ophthalmic Treatise in English"; by Fielding H. Garrison, Lieut.-Col., M. C., U. S. Army, on "Medical Men and Music," and some remarks on the medical history of the war.

—At the twenty-eighth annual meeting of the Chicago Ophthalmological Society, held in Chicago January 19, the following officers were elected: President, Dr. Alfred N. Murray, Chicago; vice-president, Dr. William R. Fringer, Rockford; secretary, Dr. Francis Lane, Chicago, and councilor, Dr. Ephraim K. Findley, Chicago.

—The Stephenson County Medical Society is said to have taken a hot wallop at the free advertising propensities of various and sundry members last month. If all county societies would report their proceedings promptly we would not depend on a prejudiced and sometimes unfriendly lay press for news items.

—Improvements costing about $700,000 are being made at St. John's Hospital Farm, near Riverton. The next building to be erected will be for crippled children. Other structures included in the plans are a home for mentally deficient girls, a hospital for those suffering from nervous diseases and a building to be used for convalescents coming from St. John's Hospital in Springfield.

—The Rogers Park Physicians' Club has adopted the following minimum fee table:

Day visits, 7 a. m. to 6 p. m.	$ 3,00
Evening visit, 6 p. m. to 10 p. m.	4.00
Night visit, 10 p. m. to 7 a. m.	6.00
Laboratory examinations	2.00
Telephone consultations	1.00
Insurance papers, each	1.00
Office consultation	2.00
Obstetrics (normal delivery)	50.00
Additional patients at home, each	2.00

—At a meeting, January 17, a five-year program of expansion for the Wesley Memorial Hospital became assured. This involves the addition of $10,000,000 worth of new buildings and the raising of an endowment fund of from $10,000,000 to $15,000,000. Sufficient funds have already been pledged to insure construction of the first of the four new buildings desired, which will be utilized as an addition to the nurses' home. The second building will be a new section to the hospital proper which will add 1,200 beds to its capacity; a building for contagious diseases will next be erected and lastly a new power plant.

—At the annual meeting of the Winnebago County Medical Society, January 13, Dr. E. W. Goembel was elected president; Dr. C. M. Ranseen, vice-president; Dr. E. L. Mertz, secretary and treasurer; Dr. S. R. Catlin, censor; Dr. E. J. Tuite, delegate to state convention; Dr. S. R. Penniman, alternate; Dr. D. Lichty, member medical legal advisory board. The society will entertain the Illinois State Medical Society in Rockford in June. The local committee in charge of the annual meeting is: Drs. Goembel, Penniman, D. R. Day, Ranseen and Tuite. The physicians expect the state meeting to be fully as large as the tri-state convention that was held there last fall.

—The division of social hygiene, state department of public health, has recently issued a report of known cases of venereal diseases in Illinois for the year ending June 30, 1919. The total number of cases reported is 11,915, with about 5,000 additional cases treated in the several clinics conducted by the state. There were 7,756 cases reported among males with 502 cases of syphilis, 5,752 cases of gonorrhea and 474 cases of chancroid. Total number of women infected was 4,159, of whom 1,808 were victims of syphilis, 2,342 were suffering from gonorrhea and nine from chancroid. Six hundred and fifty-six of these victims of venereal disease were employed in the handling of foodstuffs.

—The Madison County Anti-Tuberculosis Association held a clinical tuberculosis meeting at the rooms of the Y. M. C. A., at Alton, January 9, beginning at 10:30 o'clock in the morning and continuing all day.

The clinic was conducted by Dr. Geo. T. Palmer, of Springfield, president of the Illinois Tuberculosis Society, assited by Dr. R. E. Adkins, of Springfield, who is medical director of the state field service, Dr. O. W. McMichael, and Dr. Robert E. Hayes, of Chicago.

The following subjects were presented for discussion: "Early Diagnosis of Pulmonary Tuberculosis," "Case Histories of the Tuberculous," "Relationship of the Physician to the Tuberculous Patient," "Possibilities of Home Care of the Tuberculous Patient Without Institutional Training."

HIGH COST

It's hard to salt a nickel, to save a picayune; I have to buy a pickle, and then again a prune; the figures such things cost upset my apple cart; they stagger and exhaust me and make me sick at heart. All men are profiteering, it surely seems to me, when shopward I go steering, to buy a pound of tea; to buy a pair of trousers, a birdcage or a hat; and money mad carousers are doubtless getting fat. We men who work for wages are shy of all recourse; we fly in futile rages and clamor till we're hoarse; but still the profiteering goes forward with a will, and daily we are nearing the poorhouse on the hill. But let's be calm and steady and can our wild remarks; our Uncle's getting ready to swat the robber sharks. Our Uncle's slow as blazes, but take this to your heart. All kinds of smoke he raises, when once he makes a start. And we who toil and suffer may yet survive to see the profiteering duffer suspended from a tree. Or, if that fate's not his'n, as being too severe, no doubt he'll go to prison, and stay, year after year. The profiteers and hoarders and other soulless men will be the nation's boarders in some foul scented pen. Our Uncle Sam moves slowly, but he has giant thews; his wrath is hot and holy, and spikes are in his shoes.

—Dr. Casey A. Wood, the well known ophthalmologist of Chicago, has decided to retire from the practice of his specialty. The Chicago Ophthalmological Society gave a reception and banquet in honor of Dr. Wood on the occasion of

its twenty-eighth annual meeting, January 19, at the Hotel La Salle. Dr. William L. Noble presided as toastmaster, and the following responses to toasts were made: "Dr. Wood as the Ophthalmologist," by Dr. Lucien Howe, Buffalo; "Dr. Wood as Writer and Editor," by Fielding H. Garrison, Lieut.-Col., M. C., U. S. Army; "Dr. Wood as Professor of Ophthalmology," by Dr. Harold Gifford, Omaha; "Dr. Wood as Military Surgeon," by Dr. Walter P. Parker, Detroit; "Dr. Wood as Ornithologist and Comparative Anatomist," by Prof. Henry B. Ward of the University of Illinois. Brig.-Gen. H. S. Birkett, Montreal, dean of the Medical Faculty of McGill University, brought greetings from that institution. The society voted to confer honorary membership on Dr. Wood and the certificate was formally presented by Dr. Willis O. Nance. Dr. Heman H. Brown then presented Dr. Wood with a richly bound book containing the autographs of all persons present at the banquet. Dr. Wood left for his new home in Palo Alto, Calif., January 20, and expects to devote his energies to researches in comparative anatomy, working along special lines.

Marriages

A. W. McCALLY, Dayton, Ohio, to Miss Edna Fiegenbaum of Edwardsville, Christmas Day.

BELLENDEN SEYMOUR HUTCHIESON, V. C., Capt. M. C., Cairo, Ill., to Miss Frances Young of Kentville, Nova Scotia, December 1.

WILLIAM EUGENE KENDALL, Oak Park, Ill., to Miss Jessie May Thorpe of El Paso, Ill., December 26.

ROSWELL TALMADGE PETTIT, Ottawa, Ill., to Miss Dorothy Blatchford of Oak Park, Ill., January 16.

FRED LOWE SOPER, Sao Paulo, Brazil, formerly of Chicago, to Miss Juliet Snider of Fort Scott, Kan., December 27.

Deaths

FRANK DUNCAN, Paxton, Ill.; Hahnemann Medical College, Chicago, 1875; aged 71; died January 1.

ALMANZER RONELSON HOWARD, Canton, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 59; died December 23.

CARL HENRY GOLBECK, Chicago; University of Illinois, Chicago, 1913; aged 29; died December 21, from acute endocarditis.

STANLEY WHEELOCK, Quincy, Ill.; Kentucky School of Medicine, Louisville, 1893; aged 48; died November 22 from endocarditis.

JENNIE LIND PHILLIPS THOMPSON, Chicago; University of Illinois, Chicago, 1898; aged 51; died January 4 from cerebral hemorrhage.

FRANK A. MAGUY, Chicago; Hahnemann Medical College, Chicago, 1890; aged 61; a Fellow A. M. A.; died December 29 from bronchial pneumonia.

EDWIN ALPHONSE CARPENTER, Baileyville, Ill.; Rush Medical College, 1875; aged 73; a practitioner for 52 years; a veteran of the Civil War; died December 31.

THOMAS M. DROMGOLD, Ottawa, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 71; in Ryburn Hospital, Ottawa, December 21, from cerebral hemorrhage.

FRANK MERLE DRYDEN, Chicago; University of Illinois, Chicago, 1919; aged 30; died in Wesley Memorial Hospital, Chicago, December 28, from septicemia following a carbuncle.

FRANCIS MARION ELLIOTT, Aurora, Ill.; Rush Medical College, 1869; aged 75; a member of the staff of the Aurora City Hospital and St. Charles Hospital, Aurora; died December 9.

SEPHAS L. CARROLL, Taylorville, Ill.; Detroit Medical College, 1870; aged 83; died in St. Vincent's Hospital, Taylorville, December 26, a few hours after an operation for the removal of stones of the bladder.

ALBERT CHENOWETH, Bushnell, Ill.; Rush Medical College, 1872; aged 71; formerly a surgeon in the Army, serving with General Reno at the time of the Custer massacre; died January 2, from cerebral hemorrhage.

MARY CAROLINE HOLLISTER, Chicago; Northwestern University Women's Medical School, Chicago, 1882; aged 59; a member of the Illinois State Medical Society; a specialist on diseases of the eye and ear; died at her winter home, Lake Worth, Fla., January 2.

JOHN HOUSTON M. CLINCH, Danville, Ill.; University of Oregon, Portland, 1896; a Fellow A. M. A.; a member of the medical staff of St. Elizabeth's Hospital; while driving in his automobile over a grade crossing in Danville, December 24, was struck by a train and instantly killed.

CHARLES PHILIP PINCKARD, Chicago; Harvard University Medical School, 1889; aged 55; a member of the Illinois State Medical Society; a specialist in diseases of the eye, and one of the founders of the Chicago Ophthalmological Society; attending ophthalmologist to Michael Reese Hospital and the dispensary of that institution, and to the Home for Crippled Children; died January 17 from heart disease.

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